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INTRODUCTORY LECTURE

ON THE

PRINCIPLES AND PRACTICE OF SURGERY,

DELIVERED AT

Guy's Hospital, October 5, 1840,

BY ASTON KEY, Esq.

GENTLEMEN:—In the address which Dr. Ashwell had the pleasure and the honour of delivering before you, and which I am sorry to say I had not an opportunity of hearing, he laid before you in the clearest manner the principles which you ought to bear in mind in studying the medical profession. I am quite sure that any observations which might be made upon that subject by me would not only be superfluous, but take off the edge and weaken the force of those remarks.

I shall now proceed to my own course of lectures, which are on the principles and practice of surgery; the first of which I have the honour to address to you this evening, and which Mr. Morgan will complete in the most efficient manner.

Now, Gentlemen, the principles and practice of surgery comprise the following objects:—First, to heal the breaches and lesions of the different textures of the body; secondly, we have an equally important duty to perform, viz., to alleviate pain and suffering where we cannot cure it; thirdly, we have to correct diseased action, or natural action passing into morbid excess, thereby causing disorganisation and death; and, fourthly, our aim is by certain manipulations, called *operations*, as far as we can to check disease.

We must bear in mind, in entering upon this part of the subject, that we are merely auxiliaries to nature; we have nature as our guide, and we have nature to guide. We have to bear in mind that nature is to be our object; and, therefore, it becomes quite necessary to follow nature in our investigations, to revert to the doctrines of physiology, before we commence with the doctrines of pathology, and to ask ourselves, How are the natural functions carried on? How are the phenomena of life maintained? How are the functions of life preserved? By what agency?

In a *physiological* point of view, the two grand systems are the arterial and the nervous systems. The former carries through the circulation that important fluid, the blood; the latter so acts as to give rise to all the various phenomena of life, sensation, motion, volition, the important function of nutrition, and so forth. So in *pathology*, it is in these two functions alone that life can be injured, and death produced. If we look through the whole catalogue of disease, and the various causes which give rise to an obstruction of health, we shall find that they all act directly, or indirectly, upon one of these important functions—the nervous or arterial system. It is through these alone that the human machine can be checked in its operations, or stopped in performing its functions. Hence these two links in the chain demand primary consideration. We should ask ourselves *in limine*, at the commencement of our studies, upon what part of the system is the first impression made, whether by accidents or the effects of disease? In order to do this we must attend to the simple physiological relation of parts.

How is the first impression made by any common ailment? Is there a derangement of the blood, which is carried to all parts of the body through the medium of the circulating system? How is an impression made upon the blood? Is it not by the nervous system? Does not the blood enter cavities, and act on lining membranes supplied with nervous phenomena? Through this nervous phenomena the muscular contractions of the heart occur. In the same way, Does not the food act on the membrane of the stomach and intestinal canal, by means of nervous phenomena? Here we have a clue to that texture or part upon which pathological causes act—here we have analogical reasoning to conduct us; and we may come to the conclusion without going through a long and tedious description of physiological action, that the first impression made by disease of any kind, by a morbid cause of any kind, or by a noxious agent of any kind, is

made directly and primarily upon the nervous system.

The next question is this, What is the form which the impression takes that is made upon the nervous system in a morbid point of view? Do we find that pain is the first impression made in every instance by a morbid cause acting on the whole or a part of the human frame? Certainly not. You may have a morbid cause with pain or without it. Sometimes pain is only an accidental attendant on a morbid cause. For example, a man shall have a bougie passed down the urethra to ascertain whether there is a stricture or not. He is hardly aware, it may be, of the passing of the instrument; he feels no pain, and he has no sensation of the presence of the bougie. But you observe his countenance sink, his pulse almost ceases to beat, and you see him prostrate at once before you without pain. Pain is, therefore, merely an accidental concomitant; and diseased action may cause an impression on the nervous system unaccompanied by pain.

It becomes, then, a question whether, as the first consequence resulting from the application of a morbid agent, there is or is not excitation of the natural functions of the body—whether or not they are increased in their intensity; in other words, do we find irritation as the first immediate effect of every noxious agent applied to the human system? The example already cited, that of a man falling prostrate on the introduction of a bougie, is almost conclusive in negativing it; yet we have here a morbid impression made on the system. In this case, where the heart beats so feebly at once as scarcely to carry on the circulation of the brain, where are the proofs of excitement having taken place? But where there is excitement or irritation producing morbid excitement in the system, is this the first impression? I think we must conclude that such is not the case—that neither pain nor excitement, nor what is commonly termed in surgical language *irritation*, is the first and direct effect of a morbid agent applied to any part of the body. What, then, do we find to be the direct impression? Does it not appear—I will not say in every case, because I believe that there is no universal rule in the profession—but does it not appear in most cases consistent with philosophical observation, to conclude that the first impression is the contrary of excitement, that it is depression? Analogy, as far as it can be regarded as proof, will tend to show that such is the fact. Take an example from the extremities of the body. We have a man, a case in the present day unfortunately too common, over whose arm a heavily-laden railroad train has passed: no blood may be lost, the limb is crushed, the muscles are jammed, the nerves seriously contused, but there is no hæmorrhage. In what condition do you find him? He is labouring under that peculiar depression and collapse which are induced as the direct effect of the blow; his nervous system has received a severe shock, and is suffering under its effects, but he is not in a state of excitement, and there has been no blood lost to account for this collapse. There is some flow of blood in the arteries and veins, and, to a certain extent, in the brain; but still the whole of the nervous, muscular, arterial, and organic systems are suffering under so severe a shock, that the functions of life can scarcely be carried on. Here excitement is the after-stage, collapse is the first; the same phenomena takes place in milder cases. A man falls into a tub of liquor near the boiling point; he is taken out a few moments afterwards and brought to the hospital; you do not find his pulse excited, his heart beating with great force, his brain intensely injected with blood—no, he is shivering with cold; the heart is scarcely able to perform its functions; and the surface of the body, although he has just been taken out of a large quantity of boiling fluid, is uniformly cold; there you have the effects of collapse. The same occurrence often takes place in burns, although there is a hot application to the body, yet the first effect is not to increase, but rather to lower the pulse. If I were asked to give a general description of the primary effect of a morbid agent, I should say that it produced more or less a state of depression or collapse; that is the first sign after any common accident, or the application of a specific poison. The same results arise from a blow upon the organic system of life; they often take place from a trifling blow. A blow on the stomach, a hit in the wind, does not act so much on the diaphragm as it does upon the nerves; occasionally, not always, there is intense pain; but sometimes the shock is so severe as at once to arrest the action of the heart, and the man is killed, as it were, with a blow, even of a trifling kind. Sir Astley Cooper used to state a case which came to his knowledge, though he was not an eye-witness of the occurrence. Two men were working near the East India House, one of whom had a heavy load which he was wheeling along; his comrade said to him, "That is too much for you, stand aside and let a better man take it." He accompanied this with a slight blow on the scrobiculus cordis, and the man immediately let the barrow fall from his arms. He felt a severe shock, the sudden impulse made so strong an impression upon the heart's action as to stop it, and without complaining of pain the man died on the spot. The same thing takes place on the groin where it is slightly injured. Where the bowels are not extensively ruptured—where no extravasation takes place, but merely a slight lesion of some part of the alimentary canal essential to life, the sympathy is often so immense as to produce death.

The objection which might be made to this view of the subject is, that you cannot

always appreciate and distinguish intervals of collapse between an injury received and a state of excitement. The excitement sometimes comes on so rapidly, that the stage of collapse cannot be appreciated, and, therefore, it is said not to take place. But, whether I have taken a right view of the subject or not, I apprehend that in every case, however quickly excitement may follow a morbid cause, and however slight a change may be observed in the whole organic system of life, the brain, the heart, and other parts of the animal economy, will exhibit the impression in the form of collapse. When called to attend a man after an accident, you may not find him in a state of collapse; the collapse may have passed away, and the stage of reaction have come on. The stage of collapse may be of shorter or longer duration; but I apprehend it always exists, because, when you observe an accident at the time of its occurrence, a state of collapse or depression is manifest. I always think that an illustration explains any given point better than an argument. For example, there is a certain degree of analogy between the physical and the moral world. A man receives an injury, his feelings are hurt, he receives an insult which tends to degrade him in his own esteem: there is no man, be his mind ever so strong, or his feelings ever so powerfully steeled against the opinions of the world, on whom this will not make an impression. I put it to every candid man, and I ask, what is the impression made on him when he receives an insult calculated to lower him in his own esteem? I believe the honest answer would be, that he feels what is sometimes denominated a little *funky;* he feels a little depressed, and his heart beats rather more feebly than usual. That is the stage of collapse; slight, it is true, and it soon goes off; for a man of proper mind and proper feeling is able quickly to answer the call made on his honour—if honour is concerned—and either wards off the blow received, or avenges it. I am not now speaking of a coward; when a man of that kind receives an insult which depresses his own mind, the stage of collapse is then a very long one, and sometimes it never amounts to reaction; but, instead of his feelings being excited, he sneaks away in a state of collapse. I apprehend that something of this kind takes place in the physical world. There is sometimes a state of collapse without any reaction taking place; but in other cases reaction occurs so quickly, that you cannot discover a state of collapse, and you, therefore, suppose that none exists. I believe that in both cases there is a state of collapse, as a first and direct effect of an injury or insult so received.

Now, it is necessary to draw a line of distinction between the effects of a physical impression made in the way I have described, and made upon the whole system, and that which arises from mere mental depression alone; for it leads to a very different practice in surgery. The first intelligence given to a man of feeble mind, of feeble circulation, of a feeble nervous system, and with no energy of character, of the necessity of performing a severe operation, produces so great a collapse, as almost to deprive him of existence. After having had the operation explained to him, he is brought on the table at his own request, having made up his mind, as far as he can, to undergo it, and you proceed to its performance. In what state do you sometimes find a man of that kind? His pulse almost gone, his pupils dilated, the powers of his mind almost suspended; he hardly knows where he is, or for what purpose he is brought there; he appears to be almost at the point of death. This is an alarming position for a young surgeon; he confounds this with the state of collapse from an accident, and concludes that, if the man undergoes the operation, he will die. Not so; the inference is, to a certain extent, founded in error. He argues thus:—If I perform an operation on a man who has met with a severe injury on a railway, where the entire shock has been severe upon the system, the man may not rally, but die, without the least reaction taking place in the nervous system; collapse ensues, which becomes permanent, and ends in death. Depression, arising from physical, not mental, causes, ensues; and no surgeon would think of performing the operation until some fair state of reaction had taken place—he knows that the effects of the operation, superadded to the injury, will extinguish life. But such is not the case where there is mere mental depression; it is quite different from physical collapse, the circulation again becomes visible, the heart again recovers its power, the mind regains its tone, the man recovers his courage, and all goes on well. You must not be alarmed, thrown off your guard, and decline or postpone the operation merely on account of mental depression. As soon as the man feels it necessary to undergo the operation, and has experienced the physical pain given him by the knife, his state becomes changed, and the state of collapse is terminated. Here, then, there is a wide distinction in practice between a physical and a mental collapse—the one may remain permanent, the other passes away as soon as the operation is performed. I have more than once had a man on the table in a state of extreme mental collapse, the man, on account of his alarm, begging me not to perform the operation. I have only waited for him to give me the word of command, and the moment he has done it, I have employed the knife, knowing that he would rally as soon as he felt it giving him pain. You will find such a patient go on just as well as a man would do in a more vigorous state of mind.

You will find in practice that although

collapse seems to be the first effect of injury, yet you will scarcely ever see a man, except under some extraordinary injury, die without signs of excitement, something like reaction taking place. It certainly does sometimes happen that a man will sink into his grave without his heart becoming excited; but such cases are exceptions to the ordinary rule; for we almost always observe, sooner or later, what is termed reaction taking place; and here we have a stage which is most especially interesting to the surgeon, in a professional and a pathological point of view.

This state of reaction may extend to one or more parts; it may involve one organ alone,—for example, the heart, the brain, or the stomach. You may have the action of the heart quickened, while the powers of the mind are undisturbed. Occasionally the reaction is confined entirely to the stomach; it will become irritable, and continue so for several days. In a man of a particularly nervous temperament, with largely-developed cerebral organs, the reaction may be confined to the brain. Thus one, two, or three organs may be involved in the reaction; or it may sometimes extend to the whole system, and every part of the frame be in a state of excitement, and to this we give the name of *constitutional irritation*. This latter form of irritation is peculiarly interesting in a pathological point of view, and one that demands attention a little more particularly.

Before we investigate irritation, we should make up our minds as to what we understand by the term. I know perfectly well that I am thought by some to lay more stress on irritation than it deserves. I confess that I am, by experience and by observation, led to think this a most important part of our subject; and the more I see of the effects of accidents, both in private and in public practice, the more I am led to the conviction, that irritation is as important a branch of pathology, as inflammation. The doctrine of irritation is not a mere creature of the imagination, or uninteresting to us in the path of surgery; it is not of the mere day-dreams of the profession, and interesting to us only in the closet; but in the management of disease, and in the performance of operations, it deserves our most serious regard. I believe that the superiority of English surgeons over our continental neighbours, depends upon our drawing a wide distinction between the irritation of the nervous system and the doctrine of inflammation with which the arterial system alone is concerned. I believe that much of our success in operations depends on our strict attention to this condition, as one distinct from inflammatory action. We must, therefore, inquire what we understand by irritation; and here I must revert to simple physiological facts. What do we understand by a stimulus? What are the natural stimuli? What is the natural stimulus of the heart, the eye the brain, the stomach, and the intestines? If we understand what is meant by natural stimuli, we can comprehend what is meant by unnatural stimuli. What is the natural stimulus of the eye, for example? Light. Light is the common, natural stimulus of the retina, and the other nerves which supply the organ. If a man closes his eyes, or withdraws them from the light, their function is not carried on, and they no longer remain in a natural condition. The presence of light is not only essential to the organ, but to keep it in a state prepared to carry on its functions. But let a minute portion of sand enter between the globe and the conjunctiva lining the lids, and we then see the effect of an unnatural stimulus, or what is termed irritation. So with regard to the brain. What is the natural stimulus by which the functions of the brain are kept in action? Arterial blood. Cut off the supply of arterial blood, and what becomes of the functions of the cerebellum. There are some interesting facts mentioned by Sir Astley Cooper, in Guy's Hospital reports, relating to the importance of the blood carried by the vessels to the head. I once saw a person who had had one carotid injured, the other was tied for disease, and the brain being deprived of its natural stimulus no longer carried on its functions. Congestion took place, the patient became comatose, and after the operation died with symptoms of coma. If the brain be supplied with decarbonised instead of arterialised blood its functions cannot be carried on, but the decarbonised blood acts as a poison; in other words, it is an unnatural stimulus. The stomach and intestines exhibit the same contrast between the action of a natural and an unnatural stimulus. If the stomach be filled with food, if the alimentary canal has a plentiful supply of bile; chylification takes place, and there is a due action of the bowels. But what is the effect of tartar emetic or ipecacuanha? Why vomiting occurs. Or if the bowels are supplied with an unnatural quantity of bile—their natural stimulus; or the supply be cut off, they become purged or costive.

We now come to understand what we mean by the term *irritation*. We will define it to be—"An unnatural action induced in the heart, or in any other organ, by the application or the presence of an unnatural stimulus."

I will now consider more minutely what is the effect of irritation taking place on the different parts of the system; and I will also take a short survey of what we understand by the term *constitutional irritation*—a conventional term it is true, and one more especially used in this school, having had its origin in Mr. Hunter, and having been extensively employed by Sir Astley Cooper. As the term seems to convey to the mind of the beginner all that is understood by constitutional irritation, we cannot select a better one than this.

Constitutional irritation is similar in its effects to what we understand by the term *symptomatic fever*—not that irritation alone assumes the form of fever, but this peculiar kind assumes more or less the appearance of *pyrexia or fever*. A compound fracture will give us a good illustration. After a man has met with a compound fracture, where the symptoms are high, you observe how quickly and severely the whole system participates, more or less, in the effect. I do not now mean to give you an exact case which has occurred in practice, but describe what frequently takes place. Do we find any part exempted from the influence of this general fever? What are the signs of the brain being affected? In the first place, the mind, manner, and temper become somewhat changed; and the senses, from being obtuse, become sharpened and exalted; the sight and the hearing are quickened. A man dying after such an accident cannot bear the least movement—cannot bear the vibration across the room, and his faculties so far from being impaired are exalted. The brain is sometimes so affected by irritation, that he becomes delirious. The same thing happens with regard to the spinal marrow. After lying a day or two in bed, he complains of pain about the loins; pain in the back depending not upon posture, but the irritation along the spinal column. But more than this—in a severe accident the muscular system becomes involved; and this is one of the most fatal symptoms attendant on constitutional irritation. When you find that the patient has slight convulsive twitches of the arms and legs—*subsultus tendinum*, that the diaphragm is affected; that the man picks the bed-clothes, moves his hand not knowing what he is about: these are signs that he has lost all control over the voluntary muscles, and that, sooner or later, death will take place. The heart and organs of the chest participate. The heart is almost the first organ showing signs of debility; but after the collapse has passed away the pulse becomes excited, quickened in number, but, singular to say, not changed in quality. The pulse of inflammation and the pulse of irritation are very different. Any one who has been in the habit of feeling the pulse in the two conditions, will at once recognise and distinguish the one from the other. In inflammation there is a bounding, full pulse; whereas in mere irritation it is small, jerking, and quick in its movements. The pulse in the early stage of inflammation acquires considerable force, but in irritation it is easily compressible.

I must beg you, while on this part of the subject, to bear in mind that the two conditions of irritation and inflammation are entirely distinct. Although they are often conjoined, yet where there is inflammation without irritation, it may be taken as a certain fact that the two conditions are quite distinct, the one from the other. This is most important, not merely in a theoretical but in a practical point of view: in the first place, the remedies to be used in one condition, namely, that of inflammation, would rather tend to increase that of irritation. In inflammation we take away blood with the most advantageous results; but where there is only irritation, and the surgeon, on the supposition that there is inflammatory action, bleeds the patient, the only effect is to increase the irritability; on the other hand, if the remedies for irritation be employed when inflammation only is present, the symptoms will be increased. The difference is not a mere theory made to captivate the imagination, but it is a doctrine which must be carried out at the bedside of the patient, unless you would destroy him. One of the great evils of this doctrine being mistaken, particularly among our continental friends, is, the confounding of one state with the other, and the employment for arresting irritability, remedies which ought only to be used in a state of inflammation. Where we should give stimulants to abate the action of the heart, and thereby tranquillise the brain, our neighbours will often bleed locally, or generally, which only renders the action of the heart more jerking, whereby the head becomes filled with blood, and the action you want to subdue is increased. I do not, however, mean to say, that irritation and inflammation are never combined; I do not mean to say that in delirium tremens, where there is an exerted state of the whole nervous system, inflammatory action may not be present; there is no rule in pathology so entirely universal as to be without its exceptions. Delirium tremens is often combined with a highly inflammatory condition of the brain and its membranes; if a practitioner universally regarded this disease as the result of the excitement of nervous action, he would frequently destroy his patient. By giving opium and wine where there is inflammatory action present, the disease may be exaggerated; but in other cases where it is confined to the nervous system, stimulants, narcotics, and opium, may be employed with the best effect; it must not be supposed that in every case these two conditions are always present.

The intestinal canal and the abdominal viscera are affected just in the same way as the thoracic organs; the secretions sometimes become suspended; the stomach rejects its contents; digestion no longer goes on, and the secretions from the bowels become vitiated. In some cases the bowels become torpid, and there is costiveness; in others they are relaxed, and purging takes place; the kidneys have their functions deranged, and the urine becomes thick and high coloured; the skin also becomes hot and parched, presenting an obstruction to the insensible perspiration. Thus it would appear that almost, without exception, every

organ is more or less involved under the form of what we understand to be constitutional irritation.

Of course, as I mentioned before, every one of the organs is not always in this way. A considerable number of circumstances tend to modify the form which irritation of a constitutional kind exhibits. Age, for example, makes a vast difference. An operation performed on a very young child, of which an old man would be almost unconscious, will excite the pulse, irritate the nervous system, and induce convulsions; the aged man is scarcely susceptible; the young child is highly so. But, on the other hand, the aged man is scarcely able to repair the effects of an accident, whereas a young child will repair them readily; the old man is unsusceptible, but his powers to repair injury are defective. The middle period of life partakes of both these conditions. The adult is less irritable than the child; but there is greater susceptibility, than in an aged man, and more power to overcome the effect of injuries. The morbid susceptibility, however, of an adult will depend a great deal upon his previous habits.

I need not enter minutely into the form which irritation takes on in different constitutions; but you will find it modified by two conditions. First, by the natural temperament of the individual; in other words, by the extent of development, or the extent of the natural action of any organ in the body. For example, in one man the brain is highly developed; he has a remarkably large and excitable organ, and in him constitutional irritation will soon assume the form of phrenitis. Another shall have a torpid mind, but an excitable heart; and in this case the circulation will show his susceptibility. But, secondly, you will find that still more depends on the habits of an individual. In a man who has worked hard, and taxed his arterial system, the heart will become extremely excited in its action. In a man who has lived hard, and diseased the kidneys, or injured the liver, gastric irritation will take place. Accordingly, as a man's habit or his natural system is formed, so will be the form which constitutional irritation assumes; but on these points I need not enlarge.

Before we part, allow me to say a few words, which may be of assistance to those who have come for the first time to pursue their studies.

First, with regard to reading. For my own part, I would not recommend those who are just commencing their studies to occupy much of their time or their mind with books: they will find so much to do in the way of practice, so much to see, so much to talk about, and so much to understand, that I think they will hardly have much time to read to purpose, and certainly not to do it systematically. If I may give you advice, I would say, only read upon those points which you are more immediately studying. If you have seen a surgical operation, read upon it, because you will understand better what you have seen. We constantly have here the means of giving you books on the subject, both modern and those of a more extensive kind, whereby you may gain information regarding what you see and hear, perhaps, in a shorter way than you could by any other means. But I recommend you to confine your reading to as few books as possible, and not to read the common or ordinary works of the day.

You will find an immense deal of advantage from conversation—I think it is one of the best means of imparting and gaining knowledge. In the first place, it is always short; and, secondly, it admits of questions being asked and answers returned, which is not the case with books. You may gain more information in this manner in a quarter of an hour than you could in two hours from books. I advise you, for the profitable disposal of your time, to select an intelligent, attentive, and industrious companion as the partner of your practice and your studies. This is by no means difficult; it is much less so than it was in my time. Whether this arises from better education, from better habits, or the necessity of pursuing studies more vigilantly, whatever the cause may be, the effect is marvellously in your favour. But there is one mode which I would especially recommend you to adopt, and that is to take a part in the societies which are formed here. I mention this particularly, because if I have ever been led to think for myself on professional matters, it has been from my attendance on those societies. You will hear a vast deal of nonsense talked, we always talk too much; but you will have your minds quickened; you will be put on the *qui vive*—made to think; and when once a man is made to think, he is certain to think to some advantage. Thinking is the first step to study. I would recommend you to take a part both in the society formed of students, and likewise in that which is termed the general medical society of the hospital.

The third point is, to attend in the wards, and take down cases. I can hardly give you rules for the taking of notes and writing down what you observe in the course of the day, because it becomes a laborious task. But I would certainly advise you, early in the morning, or after the work of the day is done, daily and without omission, to devote a quarter of an hour in committing to paper what you can recollect, what you have been told, or what you have heard, or what may be entirely new. I recommend *writing*, because it makes you more exact in your knowledge. I remember hearing a lecture from Mr. Cline on the appendages of the eye: I was leaving the theatre with great complacency, imagining that I understood the

subject. Mr. Cline stopped me, and put a few questions on the lecture, not one of which could I answer. From that time I saw the importance of writing down what we observe, in order to make our knowledge more exact. It is singular what an immense state of information may be thus acquired in a short period, with little or no expense of time. It enables you to retain what would otherwise pass from your mind; and it teaches you an important lesson, by showing you what you do, and what you do not know. You will find aid in the performance of this work by becoming a member of the Clinical Report Society. You will thus be led to investigate disease in your own way, to take down its history in your own way, to compare the symptoms and understand the progress of disease.

COURSE OF LECTURES

ON THE

DISEASES OF THE EYE,

Delivered in 1839-40,

AT THE

ROYAL SCHOOL OF ANATOMY AND MEDICINE,

MANCHESTER,

By JOHN WALKER, Esq., Surgeon.

(Second Division.)

LECTURE II.

CLOSED PUPIL.

WHEN we have had an opportunity of observing a case of iritis in its early stage, and have promptly resorted to the means of treatment I described in the last lecture, it usually happens that the disordered action is subdued, and that vision is completely restored. If, on the other hand, we have not had the case under treatment until extensive adhesions have formed between the iris and capsule of the lens, or until the latter has become covered by opaque deposit, we shall frequently find that all our treatment will be of no avail, and that the patient's sight is materially impaired.

The impairment, or loss of vision, which results from an attack of iritis, is referrible to two sources: first, an extreme contraction, or closure of the pupil; and, secondly, an opacity of the capsule of the crystalline humour. Now, as I have said, it frequently happens that, notwithstanding the steady and persevering employment of mercury, belladonna, and other remedies, the conditions of the eye which I have mentioned are permanent and irremediable, so far as therapeutical agents are concerned. In this event, the aid of the surgeon is invoked, and frequently with the most beneficial result; and the proceeding which is required for the restoration of vision is termed *the operation for artificial pupil*.

But, before we shall be justified in resorting to this operation, we must be perfectly satisfied that all the means I have before advised have been properly employed, and that every trace of vascularity has disappeared,—that the eye, in short, has completely recovered from the effects of the morbid action, with the exception of the contracted state of the pupil and the opacity of the capsule.

We shall also have to consider the amount of vision which actually remains to the patient, because it is obvious that if the sight be only impaired, if vision exist to such an extent that he is enabled to find his way about comfortably, or to read large type with optical assistance, it will be scarcely worth while to perform an operation, which it is possible (from the accidents which sometimes result from the best managed operative proceedings) might not only be of no service, but leave him even worse than before. If, on the other hand, the patient's vision should be so much damaged, the disease having affected both eyes, or, in the event of one eye only having suffered, the sight of the other having been seriously injured in some other way, that he is unable to move about without a guide, then we shall be warranted in attempting some operative means for his improvement, since, with the failure of the attempt, his condition can scarcely be made worse.

But the state of the eye may be such as to render all operative proceedings perfectly hopeless. This, of course, can never happen in a case of closed pupil, simply from iritis. In some cases of iritis, however, the inflammatory action extends, as I before pointed out, to the deeper-seated textures, and involves not only the choroid, but also the retina and the humours; and, in others, it happens that the external tunics have been implicated, and that the cornea has been rendered extensively opaque. Either of these complications materially lessens the chances of success, and must be duly considered before deciding upon an operation.

With respect to the first of these conditions, the extension of morbid action to the internal textures, especially the retina, it is often difficult to arrive at a satisfactory conclusion, because, in cases where the pupil is obliterated, and the capsule exceedingly opaque, an impenetrable barrier is offered to the passage of light into the interior of the eye, and we are consequently unable to form an accurate judgment as to the sensibility of the nervous membrane. In this condition we must deduce our prognosis from the general appearance of the eye; and, if we should find evidence of the existence of internal disease, such as a varicose condition of the vessels on the surface of the globe, attenuation of the sclerotica, an unnatural degree of firmness, or a soft, doughy feel on pressing the

eyeball, or a marked increase or diminution of the general bulk of the organ; then the presence of all, or any of these symptoms, should deter us from performing an operation, as the existence of so much disorganisation of the internal textures would be indicated, as to render it certain that the function of the retina would be materially impaired, if not annihilated. Again, if we should find the anterior chamber obliterated, the iris being in contact with the cornea, and more especially if the structure of the iris have been much changed, as denoted by its puckered and irregular appearance, this state would also imply the existence of so much mischief in the interior of the organ as to render the prognosis extremely doubtful.

If an opaque condition of the cornea accompany closed pupil (and the remark will equally apply to a case in which the pupil is merely obscured by the opacity of the cornea), we should have to consider if a sufficient portion of that texture retains its transparency, to allow of the transmission of light through an aperture to be formed in the iris beneath. The extent of surface which becomes opaque, and the density of the opacity, are exceedingly variable; and we sometimes find that persons are able to see when there is very considerable opacity, and that others have very little vision when the opacity is slight; so that we may be much deceived in our conjectures on this head, and hence the necessity for caution. When a moderate portion of the cornea remains perfectly transparent, or when the entire cornea is opaque, we have less difficulty in forming a prognosis; the doubtful cases being where there is a general opacity, with only a partial and imperfect transparency at one or more points, and these of inconsiderable extent.

These are the considerations, then, which are to guide us in forming an opinion as to whether a particular case is suited for the operation of artificial pupil, or otherwise; and, if the diseased action appear to have been confined, or nearly so, to the structure of the iris and capsule of the lens, we need not hesitate as to the propriety of an operation.

Now, there are several methods of proceeding by operation. These must, each of them, have reference chiefly to two points—first, the making a sufficient aperture in the iris; and, secondly, the removal of the opaque capsule. Both of these ends may be attained by different means.

An aperture may be effected in the iris in several modes; first, by excising a portion of its substance; secondly, by making an incision into it; and thirdly, by separating it from its attachment to the ciliary ligament.

The operation by excision, or, as it is technically named, *corectomia*, being the one most frequently successful, and in all respects the best, I shall give an account of it first. In order to effect the removal of a portion of the iris, it will be necessary, in the first place, to make an opening through the cornea into the anterior chamber; and the incision should always be made close to the ciliary margin, so as to facilitate the egress of the portion of iris to be excised. The extent of the incision into the cornea need not, in a case where we intend simply to remove a portion of iris, be very considerable, not beyond one-sixth of its entire circumference. If a puncture be made with the cornea-knife, so as to allow the point of it to reach the centre of the iris, the aperture thus made in the margin of the cornea will be sufficiently large to allow of the introduction of a sharp hook, which, after the withdrawal of the knife, should be passed into the wound of the cornea, as far as the site of the original pupil, and a portion of the iris, by this means, drawn out through the aperture. The portion of iris to be extracted need not be very large: a small piece, about the size of a pin's-head, is usually sufficient to form a pupil of considerable size. It is important that the hook should be carried quite to the centre of the iris (and to effect this easily it should be introduced with its bend sidewise), and that the portion of that membrane to be removed should be from the same point, so that the aperture may be as nearly central as possible. The portion of iris in which the hook is entangled, being drawn out through the opening in the cornea, is to be laid hold of with a fine pair of forceps, and then cut off with scissors. Sometimes the forceps is introduced through the wound of the cornea, for the purpose of withdrawing the necessary portion of iris, but the hook is usually a preferable instrument.

The proceeding thus far described, it will be perceived, will only remedy those cases in which there is no opacity of the capsule, or lens, or in which those structures are absent, as in closed pupil after the removal of cataract. If an opaque capsule, or lens, remain behind the iris, the proceeding hitherto described will be of but little avail, at least it will only be preliminary; it discloses to us the fact, that there is still an opaque body in the axis of vision, and that further proceedings for its removal are requisite. We have now a less complicated case to deal with, it being converted simply into a case of opacity of the capsule, or lens, or perhaps of both; and we may afterwards proceed to the treatment of the latter condition. In practice it makes no difference, as I shall hereafter more particularly explain, whether the capsule alone be opaque, or whether the lens be also implicated, since we cannot remove the former without the previous removal of the latter.

There are several modes in which the lens and capsule may be removed. If the wound of the cornea, which has been made

for the removal of a portion of the iris, is sufficiently large for the lens to pass through, the capsule being first lacerated, it may, by gentle pressure on the eye, be forced through the aperture in the iris and out of the wound of the cornea; or the curette may be introduced through the newly-formed pupil, and the lens withdrawn by its agency. If only a puncture of the cornea have been made, with a view simply to draw out a portion of the iris, then the opening will not be sufficiently large for the removal of the lens; and it may be either broken up with the curette, and left to undergo absorption, or we may wait until the eye has recovered from the effects of the first operation, and then extract the lens.

In cases of the description we are now more particularly considering, viz. closed pupil with opaque capsule, our late eminent townsman, Mr. Gibson, advised that the capsule and lens should be first broken up, and that an artificial pupil should afterwards be made, when the irritation occasioned by the first operation had subsided. "The second part of the operation consisted in entering the knife through the cornea, into the anterior chamber of the aqueous humour, at the usual part. The point of the instrument was next passed through the iris, at the distance of about one-third of its diameter from its root, so as to form an opening, whose length was about one-third the diameter of the iris, as nearly as could be calculated. The cornea-knife was then gently withdrawn, and the iris-scissors were introduced shut, until they reached the new-formed opening in the iris. They were then opened, and one blade was passed through the aperture formed in the iris, and the other blade directed anterior to that membrane, until the middle third of the iris was included between them. An incision was now carried through the included portion, commencing at the upper part of the opening made by the cornea-knife, and directed a little obliquely downwards; so that when a similar incision was made from the inferior part of the same opening, the pupil formed an irregular aperture, resembling in in some degree an equilateral triangle."

Baron Wenzel used to perform the same operation as that for extraction of cataract, and whilst passing the knife through the anterior chamber he dipped it into the iris just before reaching the centre; then, depressing the handle, he brought the point of the instrument out nearer to its nasal margin, so as to make a semicircular flap. The incision of the cornea being completed, he then introduced a pair of scissors, and snipped off the flap which had been made in the centre of the iris, and through the aperture thus formed the lens was extracted.

These, then, are the different methods which may be pursued when we wish to make an artificial pupil by excision. But here are other modes of effecting an aperture in the iris, without the removal of a portion of its substance; and the one to which I shall next allude is that by incision, or *coretomia*.

The first operation of this description, and indeed the first that was ever performed for artificial pupil, was that introduced by Cheselden, at the commencement of the last century. It consisted in passing a sharp needle, with a cutting edge, through the sclerotica, which was made to perforate the iris near its outer margin; it was then carried across the anterior chamber to near the inner margin, and whilst withdrawing the instrument, an incision was made through the centre of the iris, in such a manner as to effect an aperture in it. This operation, when successful, forms a pupil in a transverse direction, and of an elliptical figure. It was resorted to by Cheselden, in cases of contracted pupil, after the depression of cataract; and, as he states, with good success.

The success which Cheselden himself met with, seems not to have resulted from the employment of his operation by others, and it was accordingly for some time abandoned. It was revived by Sir William Adams in 1812, who devised an instrument better adapted than Cheselden's for its performance, which is named the iris-scalpel. This instrument, in fact, is a very small scalpel, and is introduced into the eye, and used precisely in the manner I have stated to be the method of Cheselden.

Cheselden's operation is chiefly resorted to in cases of closed pupil after the removal of cataract. In cases where the opaque capsule and lens are still remaining, Sir William Adams recommended that they should at the same time be freely divided with the iris-scalpel, the lens broken up into fragments, and protruded partly into the anterior chamber, and the remainder be left in the newly-formed pupil, so as to prevent the reunion of the divided surfaces.

The principal objection to the performance of this operation is, that there is often considerable difficulty in effecting the incision; for it is found in practice that very frequently the iris, instead of allowing the instrument to pass through it when cutting out, so slight is its attachment to the ciliary ligament, is torn away and separated from it; and we may be certain that such an occurrence, which is often witnessed, must not only baffle the intention of the operator, but also be productive of serious mischief to the internal textures of the organ. Again, if the structure of the iris have been much diseased, this condition, as Dr. Mackenzie observes, is one which renders this operation objectionable, inasmuch as the aperture, if properly made, would be almost certain to become speedily reclosed. This is not so likely to happen if the iris retain an healthy appearance, and more particularly if its fibres are on the stretch, as when a portion

of them are adherent to an opaque part of the cornea, or when the pupil is drawn to the ciliary margin, as in cases of prolapsus of a portion of the iris, after ulceration of the cornea, or after the operation of extraction.

Janin, finding that he did not succeed very well with Cheselden's operation, and noticing, moreover, that a wound made in the iris accidentally with a pair of scissors did not properly close, devised the method of opening the cornea to about one-fourth of its circumference, and of then making an aperture in the centre of the iris with a fine pair of scissors. This method of forming an artificial pupil was found to be more frequently successful than Cheselden's.

Maunoir, however, discovered that even the proceeding of Janin was not so successful as could be desired. The alteration suggested by him consisted in making two incisions with the iris-scissors (a quarter section of the cornea having been previously made), proceeding from near the outer margin towards the centre of the iris, in the shape of the letter V, the apex being in the centre, the base near the ciliary margin; after which he found that "the apex of the triangular space retracted towards its base, leaving in the middle of the iris an artificial pupil of the figure of a parallelogram, or of a crescent, with the cornua directed to the great margin of the iris, when the apex of the divided portion has not completely shrunk towards its base." In cases in which the capsule and lens were opaque, Maunoir extended the incision of the cornea to one-half of its circumference, and removed the lens through the newly-formed pupil.

Another method of forming an artificial pupil is that termed *corodialysis*, or separation of the iris from the ciliary margin. Cases had been observed by Schmidt and Scarpa, in which a portion of the iris had been accidentally torn from the ciliary ligament, so as to leave an opening through which the patients had very accurate vision. Hence, it occurred to them designedly to produce the same result in cases in which the pupil was either closed or obscured by opacity. As this mode of operating was speedily abandoned by its promoters, the aperture being found to become soon closed again, I need but observe that it is only applicable in cases of general opacity of the cornea, where there is a small transparent portion remaining at the ciliary margin, and that when it is resorted to, a curved cataract-needle should be introduced from the opposite side of the eye through the sclerotica, and passed between the margin of the iris and the ciliary ligament, immediately beneath the transparent portion of the cornea, the iris being drawn towards the side at which the needle was introduced, so as to form an aperture.

The artificial pupil formed by separating the iris from the ciliary ligament, being found, as I have said, to become speedily closed, subsequent operators have proposed, in cases where there is only a small transparent margin of cornea, to make an incision through the opaque structure, with a view to the introduction of a hook for the purpose of withdrawing the separated portion of the iris, and either to cut off the same,—thus combining separation with excision,—or leave it in the aperture of the cornea, so that it may be strangulated, and ultimately become adherent thereto, constituting what has been termed *iridenclisis*. Supposing the transparent portion to be on the nasal side, a puncture is made with a cornea-knife, at a point about midway between the temporal margin and the healthy portion of the cornea. The opening must not be larger than is needed for the introduction of the hook, more especially if the portion of iris is to be left for the purpose of being strangulated between the edges of the wound, because if it be of considerable size, then it is quite clear that the portion of iris withdrawn will be likely to recede within the eye after the removal of the hook.

Some rather complex instruments have been devised for the performance of this last operation. A double hook was invented by Reisinger, which is so contrived as to act both as hook and forceps. This is introduced into the eye as a single hook, when it separates into two by its own elasticity: having embraced the ciliary margin of the iris at two points, its two sides are made to approximate, when it also acts additionally as forceps, and it is then withdrawn, bringing with it a portion of the iris. Several kinds of iris-hook, or *coreoncion*, as it has been termed, have subsequently been invented by Langenbeck, Gräfe, and Schlagintweit, still more complicated than that of Reisinger. It is extremely doubtful if these complicated contrivances are at all superior to the simple hook, or forceps. Such appears to have been the ultimate view of the subject entertained by Jüngken, who, at first, was an ardent advocate for the employment of the instrument of Gräfe, but who subsequently repudiated it in favour of the common iris-hook, or toothed forceps.

In cases in which the cornea is opaque throughout, an operation has been performed in the sclerotica, which has been named *sclerectomia*, in the hope that, by the removal of a circular portion of that tunic and of the choroid beneath, a transparent covering might be established for the transmission of light to the retina. This operation has been frequently performed in Germany, particularly by Autenrieth (who first proposed it), Beer, and Ammon. In this country, it has likewise been attempted by Mr. Guthrie;—in every instance without success.

From what I have stated, you will perceive that a great variety of proceedings have, at different times, been resorted to, by different operators, for the formation of an artificial pupil. It will, also, have been

apparent, that there are other conditions which demand this operation, besides that of closed pupil after iritis; these conditions, indeed, are rather numerous. Thus, we find that after operations for cataract, iritis sometimes ensues, and a closure of the pupil results. In other instances, a prolapsus of a portion of the iris occurs after extraction, and the pupil is drawn towards the ciliary margin, and perhaps behind an opaque portion of the cornea. In such cases, vision will probably be restored by the excision of a portion of iris, or sometimes by the operation of incision, as practised by Adams. I should state that Beer occasionally punctured the iris, when its fibres were on the stretch, with a cataract-knife, through the cornea, and thus effected an aperture.

The pupil is frequently obliterated, also, by a prolapsus of the iris occurring through an ulcer of the cornea, the central portion of the iris being drawn behind the opaque cicatrix. Central opacities of the cornea, likewise, frequently obscure vision to such an extent, as to require an operation for the removal of the pupil towards its circumference. The operation to which I first alluded, viz., puncturing the cornea, and removing a portion of iris laterally, was successfully practised by Mr. Gibson in this kind of case: indeed, he has the merit of having introduced this operation in such cases. He first of all directs a puncture to be made in the margin of the cornea, with a cataract-knife, to the extent of about three lines. "All pressure is now to be removed from the eyeball, and the cataract-knife gently withdrawn. The consequence of this is, that a portion of the aqueous humour escapes, and the iris falls into contact with the opening of the cornea, and closes it like a valve. A slight pressure must now be made upon the superior and nasal part of the eyeball, with the fore and middle fingers of the left hand, till at length, by an occasional and gentle increase of the pressure, or by varying its direction, the iris gradually protrudes, so as to present a bag of the size of a large pin's-head. This protruded portion must be cut off with a pair of fine curved scissors, and all pressure, at the same time, removed; the iris will then recede within the eye, and the portion which has been removed, will leave an artificial pupil more or less circular." This operation should, also, be practised in such cases of conical cornea, as may seem to require proceedings of this description.

In most cases of opacity, or other affection of the cornea, demanding the operation for artificial pupil, the lens and capsule retain their transparency; it is important, therefore, that in the performance of any operation, care be taken not to do anything that may tend to produce opacity of those structures. In this description of case, it is rarely necessary to introduce a hook for the purpose of causing a prolapsus of the iris, a little pressure on the eye being all that is requisite, sometimes, indeed, a spontaneous prolapsus taking place. If the hook have to be introduced (and this may be rendered necessary by adhesion of the iris to the inner surface of the cornea, as well as to the capsule of the lens), care must be taken that it is not allowed to come in contact with the capsule, or otherwise opacity of that texture may be produced. To prevent the possibility of such an occurrence, some advise the use of a blunt hook; but, with proper precaution, the sharp hook is the better instrument. When there is adhesion between the iris and cornea, it is sometimes requisite to introduce the iris-scissors for the purpose of separating the adhesions.

It is very difficult to lay down general rules that will apply to every variety of case requiring the formation of an artificial pupil. Generally speaking, however, I am satisfied that the operation of excision, by means of the hook, forceps, or scissors, is the best. It is the most extensively applicable of any, whether in cases of closure of the pupil, with opacity of the capsule and lens; in those of closed pupil, after removal of the lens; or in opacities of the cornea, the lens and capsule remaining transparent. It is an operation that appears to have been introduced about the same time, by two men of distinguished eminence, viz., Beer and Gibson; and they seem to have practised it very extensively, and with great success. The formation of an aperture in the iris by excision, in this manner, is so easy of performance, attended with so little suffering, and usually followed by so trifling an amount of irritation, as to make it much to be preferred to the operations of Cheselden and Adams. The latter interfere so much with the internal textures, that I should always be inclined to perform the operation, even in the case of incision, through the cornea; I should, consequently, practise Maunoir's operation in preference to that of Cheselden or Adams.

I have succeeded very well in cases of closed pupil with opacity of the capsule, in the manner previously indicated, viz., by dividing the proceedings into two stages: first, the formation of an artificial pupil, by drawing out a portion of the iris through a small opening in the cornea; and then, in a few days afterwards, as soon as the irritation from the first operation has subsided, the removal of the lens by extraction. This method was successfully practised in the following case:—Mr. G., ætat. 63, consulted me relative to an affection of both eyes, which had materially impaired vision, so much so that he had the greatest difficulty in finding his way about, and was quite unable to read even the largest letters. The little sight he had was confined to the right eye: with the left, he could merely perceive light, and the movements of bodies passed directly before it. On looking at the eyes, it was evident

that they had been the subject of iritis, for the pupil of the left eye was completely obliterated, so that there was not room even for the admission of a pin's-point. In the right eye, the pupil was considerably contracted and adherent to the capsule, the latter being nearly covered with an opaque deposit. The structure of the iris, in each eye, did not appear to have undergone much change, nor was there any other mark of disease existing. Under these circumstances, I advised an operation. As he would only consent to the experiment being made on the eye which possessed the least amount of vision, I was compelled to limit my proceedings to that organ. Accordingly, on the following day, with the aid of an assistant, who secured the upper lid, the patient being seated in a chair, I made a puncture with a cataract-knife into the temporal margin of the cornea, the point of the instrument reaching to the centre of the iris, when the aqueous humour escaped, and the knife was withdrawn. A small, sharp hook was then introduced through the opening of the cornea, and fixed into the centre of the iris; a portion of the latter being thus drawn out of the eye by the instrument, which was immediately laid hold of with a small pair of forceps, and snipped off with the scissors. The aperture in the iris was now observed to be full of blood, so that nothing could be ascertained as to the amount of opacity of the capsule. Strips of adhesive plaister were then brought over the closed lids, so as to keep them as much at rest as possible, and he was desired to keep himself quiet in an easy chair during the remainder of the day. The next day the effused blood was absorbed, and a good-sized pupil, of oblong shape, extended from the centre to near the outer margin of the iris, behind which was observed a densely-opaque capsule, so that no improvement to vision had as yet resulted. This operation had scarcely caused him any suffering; so that on the third day after, no inflammation having resulted, he was prepared to submit to the second stage of the proceedings. I now performed the operation of extraction, by making a section of the inferior half of the circumference of the cornea in the usual manner; the lens, which was of a deep amber colour, readily passing through the new pupil, and out of the wound of the cornea.

I had hoped that after the extraction of the lens, the capsule, or a considerable portion thereof, would have been speedily absorbed. This, however, was not the case; such was its density, thickened no doubt by the opaque matter which had been deposited upon it, that, after waiting about three weeks, the irritation consequent on the last operation having then subsided, I resolved upon breaking it up, which I did with a cataract-needle, introduced through the sclerotica in the usual way. In a few days, as soon as the eye had recovered from the effects of this third operation, which was the only one that caused him any material suffering, he went home into the country, with instructions to return in about a month. At the expiration of the period mentioned, I found that the pupil had again closed, and that the opaque capsule had entirely disappeared. I now determined to repeat the operation first performed, viz., to remove another portion of iris. For this purpose I made a puncture at the temporal margin of the cornea, in the site of the original wound, and then introduced the hook as before; but, instead of a portion of iris coming out, I found that the hook tore through an extremely fragile structure, which was little more than a thin portion of capsule, and which receded under the hook, separating and leaving a clear black pupil, as large as at first, and occupying exactly the same situation. The inflammation that resulted was very slight after any of these operations, but especially so after those which were confined to puncturing the cornea, and forming the aperture in the iris. A slight opacity remained in the course of the incision of the cornea, more particularly at its outer margin, but not to such an extent as to interfere with the pupil. The patient soon began to perceive objects with this eye, and was enabled to read large type, and to find his way alone. He shortly after returned home, quite satisfied with the result of the operations.

When it is clearly ascertained that the capsule, or lens, is opaque, it will be as well, perhaps, to join both processes in one, so as to make one operation serve, by making an incision into the cornea of sufficient extent for the escape of the lens; then removing a central portion of the iris, either with the hook or scissors, and finally rupturing the capsule, and evacuating the lens. In those cases, however, in which the capsule may possibly retain its transparency, it will be better merely to make a puncture in the cornea, and remove a portion of iris; when, if there be no opacity, further proceedings will not be required. Whether the capsule and lens be transparent, or otherwise, cannot always be determined when the pupil is obliterated. If opacity should be discovered, then the lens may afterwards be extracted, as in the case I have just related; or it may be broken up, and left to undergo absorption, according to the peculiarities of the case.

In cases of iritis, terminating in closed pupil, in which the lens may be supposed to have undergone the process of absorption, as after penetrating wounds, or the operation for cataract, the capsule, or a portion of it, remaining behind the iris and blocking up the pupil, then the process of removing a portion of iris will usually be all that is needed, as the capsule will probably undergo absorption afterwards; or, if it should not, it may then be broken up with a needle, or extracted. I will relate a case in illustration:—Mrs. M., æt. 62, applied to me in March, 1839. Three

years before she had undergone several operations for cataract. The right eye had been destroyed by severe inflammation, the cornea being opaque throughout, and there was a partial degree of staphyloma. The left had been more fortunate; with it she had enjoyed some useful vision, but owing to several inflammatory attacks, she had again become nearly blind. The pupil was observed to be exceedingly contracted, and almost blocked up with opaque capsule; but the appearance of the iris, and, indeed, of the eye generally, was of a healthy description. Under these circumstances, the operation of excision was resorted to. I made a puncture at the temporal margin of the cornea, carrying the point of the knife into the pupil, which was immediately followed by the discharge of the whole of the aqueous, and a considerable portion of dissolved vitreous humour; a sharp hook was then introduced through the wound into the pupil, and a portion of iris drawn out, which was cut off with the scissors. A slight degree of inflammation resulted, and the eye remained in a rather irritable condition for several weeks; but she ultimately recovered excellent vision, the pupil having been much enlarged, and the capsule nearly removed.

After an operation for artificial pupil, particularly if the lens has been removed, vision is seldom perfectly re-established. Optical assistance will, under these circumstances, frequently be of great advantage, and the patient, so soon as all irritation has subsided, should be supplied with a suitable pair of cataract-glasses. But the newly-formed pupil possesses no power of adapting itself to the varying intensity of light, so as to expand or contract, according to the laws which regulate its movements in the healthy condition. Vision is frequently less perfect after an operation for artificial pupil than after one for cataract, particularly in those cases in which there has been inflammation of some of the internal textures. The reason, probably, is, that the retina frequently becomes implicated in the morbid action. This may, of course, happen in every possible degree, just as we see slight and severe attacks of iritis; and the retina, without having its function actually destroyed, may, nevertheless, have it so much impaired, that the patient, though far from being blind, may yet possess only a limited amount of vision.

The situation of the new pupil will also, probably, have something to do with the greater or less perfection of sight. There can be no doubt, that in operating for artificial pupil, we ought always to endeavour to effect the aperture in the iris as near to the situation of the natural pupil as circumstances will allow. Any deviation from this point will be more or less prejudicial; and it is probably of little moment what direction the deviation takes, whether to the external or internal, or to the superior or inferior margin of the iris. Each of these situations has its disadvantages; if the aperture be at the upper part of the iris, then it is liable to be obscured by the superior eyelid; if at the inferior part, it is below the ordinary axis of vision; if at the inner side, the field of view is limited by the nose; and if at the outer side, the patient can only see perfectly at the corresponding side, and he is obliged to place objects in that direction when wishing to examine them attentively. Opposite opinions are entertained by different authors, as to which situation is most advantageous. The experience of Mr. Gibson was decidedly in favour of the temporal side. He remarks on this point—"My reason for forming the artificial pupil towards the external angle of the eye, when circumstances allowed it, is, that instruments can be used in this part with more facility than in any other part of the cornea; and every advantage is, at the same time, derived from the operation. When this part of the eye has been found opaque, I have formed the pupil, in several cases, both at the inferior part of the cornea and towards the internal angle of the eye. I did not, however, observe, that my patients saw at all more distinctly. On the contrary, when the artificial pupil was formed towards the internal angle of the eye, the sight, in my opinion, was less extensive; the nose appearing in some measure to curtail the field of vision. I prefer, therefore, the operation at the external angle, in all convenient cases; and if the patients are enabled to read with more certainty by this mode than any other, they can have little reason to be dissatisfied with the slight squint of which it may be productive."

Some writers caution us against making the pupil too large. There seems to be little reason to apprehend anything on this score, since it is more difficult to procure a large pupil than a small one; sometimes from the obscurity of the cornea—sometimes from the tendency to contraction of the newly-formed aperture, particularly if there be much inflammation following the operation. Nor do I think that much inconvenience results when the pupil is of a considerable size, because we frequently see persons with very large pupils, who, notwithstanding, have very excellent sight.

The treatment after operations for artificial pupil is to be conducted as after other operations on the eye, viz., by repose of the organ, and general antiphlogistic means. A principal object will be to prevent the recurrence of inflammation of the iris, and the consequent effusion of new matter into the pupillary opening. If inflammation result, its reduction is to be accomplished by the employment of the means I described in the last lecture. The use of belladonna, however, will have no effect on the newly-formed pupil. After the mere puncture of the cor-

nea, and withdrawing a portion of iris, I have rarely observed any inflammation of consequence to succeed. When the lens is also extracted, more inflammation may be looked for, and more care will, therefore, be requisite.

LECTURES

ON THE

ORGANS OF REPRODUCTION IN THE ANIMAL KINGDOM.

DELIVERED IN THE ROYAL COLLEGE OF SURGEONS, LONDON.

By Professor OWEN, F.R.S.

LECTURE XV.—May 23, 1840.

In the last lecture it was remarked that the monotremata presented no external appearance of organs of generation, and possessed but a single outlet, through which the penis was extruded when in a state of erection. While in a quiescent state it is inclosed in a distinct pouch, or preputial sheath, lying in close connection with the cloacal canal. The monotremata have no vesiculæ seminales, and in this deficiency they resemble birds and the true reptiles.

Marsupiata.—In the marsupiata the internal pillars of the external abdominal rings are converted into bone—the marsupial bones, around which the large cremaster muscles play, and compress the testes in the male and the mammary glands in the female. There are no vesiculæ seminales; the urethral canal is long, and at the base of the penis are situated six accessory glandular bodies, analogous to Cowper's glands. The corpus spongiosum terminates posteriorly in two bulbs, each of which is inclosed in a distinct muscular capsule, analogous to one of the acceleratores urinæ. This disposition of the posterior extremity of the corpus spongiosum, is in correspondence with the existence of a double glans, with an intervening groove, and is a general character when such a bifurcation of the terminal extremity of the organ is present. The true function of the acceleratores is also well exhibited with such a structure; for both muscles acting simultaneously on the two bulbs, would not only tend to press onwards the wave of seminal fluid along the canal of the urethra, but also to force the blood collected in the bulbs into the bifid glans, and distend it at the precise moment when its erection is most required. The corpus cavernosum divides posteriorly into two crura, which are but slightly connected with the bones of the pelvis, but are surrounded by two strong and powerful muscles, the erectores penis. These muscles, like the acceleratores, are obviously adapted to perform their appropriate function in these animals, serving to compress the crura of the corpus cavernosum, and thus become agents in the erection of the penis. Besides these, there is an additional pair of muscles, which serve the purpose of directing the penis forwards. They arise from the sacrum, and pass along the dorsum of the organ to be inserted at the base of the glans. In chelonia they arise from the cervical vertebræ. The outlet of the cloaca is surrounded by a very strong sphincter muscle, which besides closing this opening, by its forcible contraction around the root of the penis, is an important agent in erection. In the Wombat, the penis expands at its extremity somewhat like a funnel, and also divides into two portions.

Rodentia.—This order includes many of the most prolific, the smallest, and least intelligent, with the exception of monotremata and marsupiata, of mammiferous animals. In correspondence with the production of a great number of young, is the existence of very complicated generative organs. In the largest genus of the order, the Capibara, the vesiculæ seminales, or glandulæ vesiculares, are of prodigious size, larger even than the urinary bladder; the prostate gland is bilobed, and there is a pair of director muscles to the penis. With the exception of the Hare and Rabbit the testes are internal; at the rutting season they undergo a remarkable increase of size, and as if in this state they were productive of inconvenience to the abdominal viscera, they are protruded through the spermatic canal, and become placed externally, and inclosed in a temporary scrotum. At the termination of the breeding season they diminish in size, and are retracted within the abdomen: in these animals the opportunity is afforded of ascertaining the true mode of formation of the cremaster muscle. Carus thought that this muscle was made to occupy its ordinary position in relation to the testis and spermatic cord, in consequence of the testis, during its descent, carrying before it mechanically a few of the inferior fibres of the internal oblique muscle. But if, in a rodent animal, the abdominal parietes be carefully dissected before any descent of the testis have taken place, it will be observed that the fibres of the cremaster are inverted and attached to the lower part of the organ; they are themselves, therefore, active agents in drawing down the testis; and after its diminution, they serve by a kind of inverted action to carry it back again into the abdominal cavity.

With regard to the accessory glands, there exists in the Hare a single glandula vesicularis, the only instance of this peculiar arrangement in the animal kingdom. This organ is partly membranous and partly muscular, and is situated upon the middle line. In the Squirrel the glandulæ vesiculares are extremely small; but in the other

rodentia, particularly in the Guinea-pig, they are remarkably large. These are, unquestionably, not the mere recipients of the fluid from the testes; but provide, by means of their glandular parietes, a distinct secretion of their own, and open separately from the vasa deferentia into the urethral canal: for this reason Mr. Owen names them glandulæ vesiculares. Many rodentia, as the Beaver, have, besides these, a considerable dilatation of the vas deferens previously to its termination. The prostate gland is composed of an assemblage of cæcal follicles connected only very loosely together by cellular tissue. Cowper's glands exist throughout the entire order, but present a great variety in their appearance: the penis is bent upon itself, and is protruded from a preputial sheath either near or through the anal aperture; it is provided with a pair of director muscles. In the Beaver, the glans penis is covered with a number of minute horny papillæ; and the prepuce incloses two peculiar glands, analogous to the glandulæ odoriferæ, from which the therapeutic agent castoreum is obtained. In the Guinea-pig and Agouti, the horny papillæ are of large size, and there are several recurved spines upon the glans penis; but in the Cavia, the glans penis presents the most remarkable character observable in the whole animal kingdom; there are two long and curved spines at the extremity of the organ, and two horny laminæ with sharp, recurved teeth upon each side.

Edentata.—This order includes the Anteaters, the Manis, the Sloth, the Armadilloes, &c. Their generative organs present no general or typical condition. In the Bradypus, or Sloth, the male organs present a much closer analogy with the female than in any other of the mammifera. The testes are internal; the vasa deferentia are consequently short and large, and dilate at each side behind the bladder into a duct resembling the horn of the uterus. The two ducts then unite and form a common canal, which unites with the uriniferous duct, and they both terminate by a single opening. In the Armadillo the penis is of immense size, presents the usual mammiferous character, and is provided with two director muscles. The prostate gland resembles that organ in man, and the vasa deferentia pass through it to enter the urethra. There are no vesiculæ glandulares in any of the Edentata.

Cetacea.—From the land Edentata the transition is easy to the marine Edentate animals. As in marine animals, generally, there is no external appearance of organs of generation; the penis is bent into a sigmoid curve; the testes are internal; the vasa deferentia are short, and terminate in an organ which appears to be a prostate gland, but is chiefly composed of a large muscle,—the constrictor isthmi urethralis; a muscle which has relation to the difficulty which must exist in the coitus of two animals swimming in the sea, and unprovided with arms. In connection with the force necessary for the violent expulsion of the seminal fluid is another peculiarity, pointed out and delineated by Mr. Howship; it consists in the existence of a cæcal pouch, or cul de sac, at the commencement of the urethral canal, into which the vasa deferentia open upon a papilla representing the veru montanum of man. This pouch prevents the reflux of the secretion towards the bladder during the action of the muscle, and its admixture with the urine; there are no glandulæ vesiculares; the penis is of prodigious size, conical, and pointed towards the extremity, and composed of a corpus cavernosum without a central septum.

Ruminantia.—The generative organs in this order come next to Cetacea, in point of analogical resemblance; they have a penis, which is much curved, and furnished with retractor muscles; there are no glandulæ vesiculares. The testes are external, and lodged in a scrotum; the Camel is the only exception to the latter character, for in that animal there is no prominence of the integument formed by the testes which can be considered as a scrotum. At the commencement of his urethra there is a bilobed prostate. The membranous, or rather the muscular portion of the urethra is long; and there are two Cowperian glands, each inclosed in a distinct muscular capsule. In ordinary ruminants, as the Bull and Giraffe, the prostate is completely divided. The penis is very long, slender, bent into a sigmoid curve, and retained in that position by means of a pair of retractor muscles. The extremity of the penis of the Giraffe presents a curious character in the extension of a portion of the mucous lining of the urethra to a considerable distance beyond the meatus. In the Camel and Llama, the glans penis is bent back in a very peculiar manner.

Pachydermata.—In the Horse, which is the commonest illustration of this order, the testes are external, the tunica vaginalis, as in most mammifera, communicating with the peritoneal cavity. The vesiculæ seminales are three in number; one at each side in the ordinary position, and one in the middle line, corresponding with a very much dilated sinus pocularis of man. These, from the thinness and simplicity of their structure, are evidently reservoirs of the seminal secretion. The vasa deferentia near their termination are very much increased in size, convoluted, and their coats thickened, so that in the Horse there are no fewer than five distinct seminal reservoirs. The prostate gland is of large size, and consists of two lobes united on the middle line. Cowper's glands are inclosed in distinct muscular capsules. The penis is remarkable for the number and size of the veins situated on its dorsum.

The accelerator urinæ is continued as a muscular sphincter the whole length of the urethra, and there is a retractor ligament of elastic tissue. When a section of the corpus cavernosum is made, its internal structure is observed to be composed of white fibrous cords, derived from the fibrous envelope, and of a peculiar red tissue disposed in the longitudinal direction. Hunter, in his experiments upon this tissue, thought that he could observe it to contract when irritated; but microscopic examination proves it to be quite dissimilar from muscular fibre; and Müller has ascertained that it consists almost wholly of gelatine. In the Hog, the testes are external, the vesiculæ seminales remarkably glandular, and the vasa deferentia have no communication with their ducts. Tyson looked upon them as independent glandular organs. The Cowperian glands are larger than in any other animal, and surrounded by thick muscular capsules. The muscular portion of the urethra is very long. In the Elephant the testes are internal, and the vasa deferentia communicate with the ducts of the vesiculæ seminales. Each vesicula is partially divided into two cavities, of which the upper is thick and glandular. They are simple membranous bags, as in the Horse, and are inclosed in a thick muscular coat or capsule, which is a peculiar structure. On the penis is situated a pair of director muscles, which arise from the os pubis, and pass along the dorsum to be inserted into the base of the glans. When in action they are capable, from their position, of compressing the dorsal veins of the penis, and contributing to erection. In the Beaver, the use of this muscle is well seen; and Hunter has selected this animal as an illustration of its action. In his experiments upon the Dog, recorded in the animal economy, he succeeded in procuring erection by tying these veins.

Insectivora.—The unguiculate insectivora, as the Mole, Hedgehog, &c., are exceedingly prolific, and are remarkable for the periodical increase which the testes and internal organs undergo in the breeding season. Hunter has put up a whole series of preparations, showing the progressive changes of these organs in the Mole; by which it will be seen that not only the testes but also the prostate gland undergoes a remarkable growth. In the Hedgehog the vesiculæ seminales are also much enlarged; but opening into the urethra distinctly from the vasa deferentia, they cannot be said to increase in a relative proportion with the testes. Cowper's glands are situated upon the posterior and external part of the pelvis; and their excretory ducts pass through the ischiatic foramina to terminate in the urethra. Thus in the Hedgehog there are immense vesiculæ seminales, a large prostate gland, still larger Cowper's glands, and all terminating by distinct openings in the urethra.

Carnivora.—The true carnivora preying upon other animals are less prolific than the preceding orders, and their generative organs are more simple. There are no vesiculæ either in the land or aquatic genera; the testes are external, with the single exception of the Seal, in which they are internal. In the Bear the vasa deferentia terminate in an organ which is analogous to the prostate gland. Cowper's glands are found throughout the entire order. The penis presents a peculiar character, in the existence of a bone which is remarkably developed in all the Plantigrade tribe. In the Felis, there is but a very slight cartilaginous rudiment of this bone. The surface of the organ is provided with numerous retroverted spines. In the Dog there is a remarkable plexus of veins at the root of the organ, upon which the lengthened coitus of that animal depends.

Quadrumana.—From Carnivora the transition is easy through Cheiroptera to Quadrumana. The penis is no longer concealed in a sheath of the integument, but is external and pendent; a character which Linnæus considered as one principal feature in his great group of Primates. All Quadrumana have vesiculæ seminales, a single prostate, and Cowper's glands. The vesiculæ seminales are simplest in the family of the Lemurs. The os penis still remains as an evidence of the inferiority of the Monkey tribe; but is wanting in the true Apes, the Orang and the Chimpanzée. The Chimpanzée, moreover, approaches to man very closely in another character—the closure of the spermatic canal; which remains open in every other animal. In reaching the highest order of the animal kingdom, we cannot but admire the nice balance which exists between the different organs in man. There are no enormous vesiculæ seminales, no inordinate prostate gland, and no periodical enlargement of the testes. He is at all times prepared for the completion of the reproductive act; but he is endowed with the high moral influence of self-denial, which renders him master of himself, and the master of the rest of animals.

ABSENCE OF THE UTERUS.

Dr. Samuel Chew, of Baltimore, was called to a young woman, 22 years of age, suffering from amenorrhœa. She was affected monthly by the usual general symptoms of menstruation, but without any secretion; the external organs were naturally formed, but the vagina terminated abruptly at one inch and a half from the orifice. No vestige of uterus could be discovered by examination through the vagina or rectum.

HÆMORRHAGIC DIATHESIS.

SUCCESSFUL TRANSFUSION OF BLOOD.

By SAMUEL LANE, *Esq., Lecturer on Anatomy and Surgery in the St. George's School, Grosvenor-place, Hyde-Park Corner.*

To the Editor of THE LANCET.

SIR:—Allow me, through the medium of your Journal, to place on record a successful case of transfusion of blood: to which operation I had recourse in a boy who was dying from hæmorrhage, after a slight surgical operation. George Firmin, eleven years of age, was brought to me by his father, for the purpose of having Dieffenbach's operation performed, to relieve the deformity of squinting. Nothing worthy of particular notice occurred during the operation, excepting that the boy became faint, and there was more bleeding than usual. The bleeding, however, soon subsided, and the boy was able to walk home after the operation.

On the same evening I was sent for, in consequence of the recurrence of bleeding from the eye. I succeeded in arresting it in about half an hour; and was now informed that the hæmorrhage had commenced a quarter of an hour after his return home (twelve o'clock in the day), and that he had been losing blood for six or seven hours. On further inquiry, I then first learned that the boy's life had been in danger several times from hæmorrhage, after very slight injuries. Four years ago he had been received into St. George's Hospital, in consequence of hæmorrhage after the loss of a tooth; and the bleeding on this occasion continued for four days. Six months after this he was admitted into the same hospital under similar circumstances, when the hæmorrhage was not completely arrested for a fortnight. A few months from this period he lost a considerable quantity of blood from a cut of the finger: on this occasion the bleeding was stopped by pressure. In September, 1839, he was in St. George's Hospital for an affection of the knee-joint: leeches were applied, the bleeding from them was arrested with considerable difficulty: ultimately the leech-bites were transfixed with needles, and ligatures tied underneath them. In the present instance the bleeding continued with occasional intermissions for six days and five nights, in spite of the usual remedies, both general and local. The intermissions were obtained principally by pressure, and by propping the patient up in the upright position, so as to induce faintness: sometimes the blood continued to ooze when the pulse could not be felt at the wrist; but on these occasions the heart could be still heard pulsating distinctly on placing the ear to the chest. The blood appeared less disposed to coagulate than usual; and so thin was it in consistence, that it resembled a mixture of blood and water as it flowed down the face. Occasionally, however, it formed a distinct, but not very firm, coagulum. The bleeding was controlled on the third day for several hours, by alternate applications of powdered gum tragacanth, and beaver gathered from a hat, which with the blood formed a coagulated mass as large as the boy's hand, concealing the whole orbit, and firmly adhering at its margins to the surrounding skin. This constituted a hard and very resisting incrustation, and I had great hopes that it would have proved effectual, but a sudden accession of the hæmorrhage removed the whole mass.

On the fourth day, the boy's stomach rejected every thing he took, and he was in a state of extreme prostration: the bleeding, however, continued as long as the pulse could be felt in the carotids.

On the fifth day, he was in a state of almost continual syncope, and had two very alarming fits, which I did not see, but which, as described by the boy's mother, consisted in a general spasm of the muscles both of the features and limbs. The contents of the stomach were thrown into the mouth; but he had not sufficient power to eject them, and was in danger of being suffocated from this cause. I now made up my mind not to allow the boy to die, without giving him the chance afforded by the operation of transfusion, and in the evening every thing was in readiness for the purpose: the bleeding, however, had been for some time controlled by pressure, and the boy had rallied a little, I was therefore induced to delay the operation.

On the sixth day, he was, if possible, in a more deplorable condition than ever; the bleeding had returned during the night; the features were shrunk; the skin was of the paleness, and almost coldness, of death; the pulse could not be felt at the wrist; the arms, and even the head, remained wherever they were placed, so utterly was he deprived of all muscular power. Under these circumstances, at seven o'clock in the evening, in the presence of several friends, the operation was performed.

The operation of transfusion being one that has been seldom witnessed by the profession, I will briefly describe the plan adopted by myself, after receiving full instructions from Dr. Blundell, who kindly, and with great perspicuity, explained to me the result of his experience with respect to the steps of the operation. The apparatus used was provided by Messrs. Philp and Wicker, of St. James's-street, and will be readily understood by the accompanying woodcut. It consists of a syringe, with two

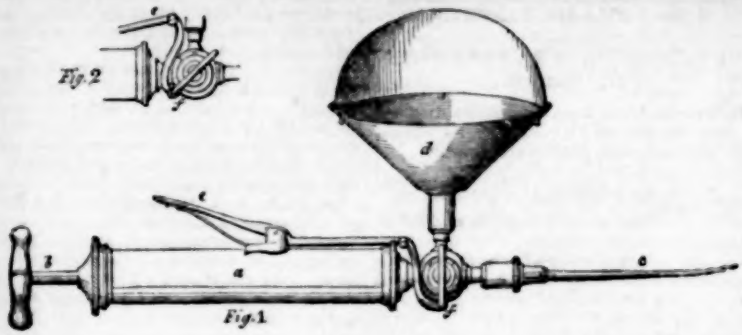

Fig. 1.

Fig. 1.—The syringe, with its pipe and funnel ready for use. *a*, the cylinder; *b*, the piston; *c*, the pipe, the extremity of which is introduced into the vein; *d*, the funnel; *e*, the lever which acting on *f*, the stop-cock opens or closes the communication of the syringe with the funnel or pipe as may be required.
Fig. 2, represents the stop-cock turned by the depression of the lever *e*, of fig. 1.

inlets; one, as usual, in a line with the barrel of the instrument; the other at right angles to it. To the former a tube is fitted, of a convenient form, to enter the vein of the recipient person; to the latter a funnel is attached, to receive the blood from the arm of the person supplying it. The orifices are regulated by a two-holed cock, moved by a key which opens and closes them alternately.

A vein was selected at the bend of the elbow; a fold of skin was raised transversely to the vessel; the base of the fold was pierced with a sharp-pointed bistoury, and the skin divided by cutting towards the surface: an incision, an inch in length, was thus made, over and parallel with the vein. An Anel's probe was now passed under the vein, at the lower part of the incision, which served to raise and steady the vessel, and also to prevent the escape of any blood after the opening was made in it, which was effected by a common lancet. The apparatus had been previously warmed, by placing it in warm water; and the tube attached to the syringe was introduced into the boy's vein, to ascertain that no obstacle to its easy passage presented itself: it was then removed, for the purpose of getting the syringe charged with blood. The vein of the person supplying it (a stout, healthy young woman) was now opened by Mr. Ancell, and when about two ounces had been received into the funnel, a portion was drawn into the syringe; after which the instrument was held vertically with the nozzle uppermost, and the piston being urged on, the air in the tube beyond the barrel was displaced by the blood, the tube was again introduced into the vein of the boy without delay or difficulty; the blood, however, had begun to coagulate, and I did not attempt to use it. The entire apparatus was again washed out in warm water. It immediately struck me that all this delay might be avoided, by displacing the air by means of water instead of blood; so that the tube might be fixed in the vein, and the whole apparatus retained ready for use.

This plan was adopted, and the young woman's arm being brought over the funnel, was allowed to bleed into it; as soon as an ounce of blood had flowed, the piston, which was graduated, was raised so as to draw in half an ounce, and then carefully depressed; and the blood was thus propelled into the boy's system. Proceeding cautiously, watching the respiration and the cerebral functions, as indicated by the motions of the chest, the colour of the skin, the state of the eye, the lip, and other features, as much as five and a half ounces of blood were injected into the vessels of the boy. This was not effected without some interruptions; four separate times the entire apparatus was removed on account of the tendency of the blood to coagulate, and warm water was passed through it. After the young woman had lost ten or twelve ounces of blood, it began to flow more slowly from her arm, and we were compelled to be satisfied with the quantity already transfused. The beneficial effects, at least to any marked extent, although the pulse immediately returned at the wrist, were not instantaneous; but, in the course of an hour or two, the boy sat up in his bed, and drank a glass of wine and water from his own hand; and the contrast between life and death could scarcely be greater than his state at this moment compared with that of a few hours before. There was no recurrence of the bleeding from the eye. The wound at the bend of arm healed in about ten days; and the boy, after being wheeled out in a hand carriage in the open

air, soon recovered his appetite and strength, and, in about three weeks, went into the country; from whence he returned a few days back perfectly well, and with the eye restored to a straight position.

The cases on record of hæmorrhagic diathesis are not very numerous; the earliest I have met with will be found in the "London Medical and Surgical Journal." In the volume for the year 1808, p. 69, Dr. Otto, of Philadelphia, relates an instance of this disease affecting the males only of a family. Dr. Otto mentions the sulphate of soda as an effectual remedy.

In the volume for 1811, p. 422, a case is recorded (from "Hufeland's Journal") where the females and the parents were exempt from the affection; the males, some of whom died from this tendency to bleed, were also subject to continued and severe attacks of gout.

In the volume for 1815, p. 9, a very interesting description is given by Dr. John Hay, Fellow of the Massachusetts Medical Society, where this peculiar state of system is traced through two or three generations, the males alone being affected. Dr. Hay asserts, that "the children of bleeders are never subject to this disposition; but their grandsons, by their daughters, are." He relates the cases of several of the family who lost their lives from hæmorrhage; and states that he has also found the sulphate of soda given in ounce doses every morning, or more frequently, a certain remedy.

The late Mr. Wilson, in his lectures on the vascular system, delivered at the Royal College of Surgeons, in the year 1819, relates the case of a boy, between three and four years of age, who bit his tongue; from which slight wound he bled to death, in spite of every remedy that could be devised. This case is rendered still more interesting by an account of the post-mortem examination, the only one I have been enabled to meet with. Mr. Wilson observed, that in this case the coats of the arterial system were not more than half their usual thickness, and attributed the hæmorrhagic tendency to a deficiency of contractile power in the arteries. There was reason to believe that all the male children of this family were similarly constituted, from the readiness with which their blood became extravasated on the least pressure; and Dr. Wilson, who has since attended some members of the same family, informs me that three of the brothers have perished from this peculiarity of constitution. One died of hæmorrhage from the loss of a tooth; the other two from falls, in which they received blows on the head not sufficiently severe to have produced much mischief in a sound state of the system, but which in them was followed by extravasation of blood within the cranium. The only surviving male has shown marked symptoms of this malady; he nearly lost his life at one time from the removal of a tooth, and, about two years back, Dr. Wilson attended him for hæmorrhage to a considerable extent from the bowels.

Mr. Blagden has recorded an interesting case in the eighth volume of the "Medico-Chirurgical Transactions," where a gentleman lost his life from hæmorrhage, after the extraction of a tooth. In this case the carotid artery was tied, but without effect.

Mr. Wardrop, in his instructive little work on blood-letting, published in the year 1835, has collected several cases, including Mr. Wilson's and Mr. Blagden's, of this inordinate disposition to bleed from slight injuries; and he attributes the disease to a deficiency in the coagulating power of the blood. One gentleman bled to death from a cut in his finger; another from a wound made in passing a seton; a third gentleman, whose brothers had the same tendency to bleed from the slightest wound, died of hæmorrhage after the operation for fistula. Mr. Wardrop gives also a case, communicated to him by Mr. Ward, surgeon, of Ewell, of a child who was twice under his care for serious hæmorrhage from slight injuries; the most interesting part of Mr. Ward's communication relates to the hereditary nature of the disease, which I give in his own words, as quoted by Mr. Wardrop:—"The circumstances connected with this boy's family are equally remarkable. His mother has a numerous offspring; and a brother, who is twenty-two years old, is afflicted in a similar way, and is also an almost constant sufferer with rheumatic gout. He had five uncles and two aunts: all his uncles had the same hæmorrhagic tendency; three died from a division of the frænum linguæ; one from the extraction of a tooth; and the other had the same disease, but died from some other cause."

"The aunts had not that tendency in their persons: the one had three boys, two of whom are thus afflicted; the other has two boys and two girls; both boys are afflicted in the same way."

Lastly, Dr. Du Bois, of Neuchâtel, in Switzerland, relates an instance in which a family were affected with this malady. The family consisted of five boys and a girl; the latter alone was exempt from the disease; she died of convulsions in her third year. One of the boys also died of convulsions on the day of his birth; three have lost their lives from hæmorrhage: the eldest, at the age of twelve, from epistaxis; the second, at the age of eight, from hæmorrhage from all the mucous surfaces; the third, at twenty months' old, from biting his tongue. The surviving boy is seven years old, and has shown the same disposition to hæmorrhage, and will, in all probability, lose his life in the same way. Dr. Du Bois observes, that this affection is not uncommon in the West of Germany and in the Rhenish Provinces,

attacking the males only. In some families scarcely a male reaches the age of maturity, and the person thus affected is called a bluter, or bleeder.—*British and Foreign Review*, for Jan. 1840, p. 247.

After a careful perusal of these cases, it appears to me that I am warranted in drawing the following conclusions:—That males only are subject to this peculiarity of constitution; that the father of a bleeder is always free from the disease; that the son of a bleeder is never affected by it; that the bleeder inherits this diathesis invariably from his maternal grandfather.

Dr. Blundell, in his "Physiological Researches" on the subject of transfusion, has established by numerous experiments the following most valuable facts:—

1st. That the blood of one animal may be received into the vessels of another of the same species without danger to life.

2ndly. That the blood may pass into an intermediate receiver, and remain a short time in contact with dead matter, without being rendered unfit for the purposes of life.

3dly. That an animal may be bled to apparent death, and brought to life again, by the transfusion of blood from another animal of the same species, without suffering any permanent ill-effects from the experiment.

4thly. That it is dangerous to transfuse the blood of one animal into the system of another of a different species.

We are now prepared to understand why the operation of transfusion, from which so much was expected on its first introduction in the middle of the seventeenth century, when it was looked upon as a discovery, which was not only to preserve mankind from the inroads of all disease, but was to impart health, vigour, and youth to the whole human race, should so soon and for so long a period have fallen into disrepute, when we recollect that it was the blood of lambs and of calves that was received into the human system, by connecting to an intermediate tube, on the one hand, the artery of the animal, and on the other the vein of the human subject. Nor can we be surprised that several lives were sacrificed, by the then advocates of transfusion, in France, in England, and in Italy; and that in one country a penalty should have been attached to the performance of the operation on the human subject. It is to Dr. Blundell, and to his pupil Dr. Leacock, of Barbadoes, that we are indebted for the important facts that human blood alone is fitted for the human system; and that the syringe may be used as a means of transferring the vital fluid from the vessels of an individual who can spare it without risk to himself, into those of a dying friend or relative to whom it may afford life and health; and it was, no doubt, the conviction and confidence, arising from sound physiological views, tested by well-contrived and carefully-performed experiments, that alone emboldened Dr. Blundell to perform this operation on the human subject after it had been interdicted for nearly two centuries. For my own part, I am convinced that the operation of transfusion, performed with due skill and attention by a person sufficiently impressed with the importance of excluding the air, and of injecting the blood in a perfectly fluid state, is not in itself dangerous, provided that the blood be procured from a healthy individual of the same species. In the case which has fallen under my own care, I could not attribute one bad symptom to the operation; and I am inclined to believe that many of the fatal cases from hæmorrhagic tendency, to which I have referred, might have terminated favourably by the timely performance of this operation. Since the introduction of this operation, in its improved form, by Dr. Blundell, I could enumerate as many as twelve cases in which life has been preserved by its adoption; and had I not already trespassed so much on your space, I would have added a condensed account of these cases. Whether the transfusion of blood will ever be recommended as a powerful remedial agent in disease, is a question upon which I shall decline offering an opinion at present. It may be safe, however, to affirm, that in proportion to the conviction that this remedy may be adopted without danger, and in proportion as it becomes proved that many fatal diseases depend upon an altered and vitiated state of the blood, in the same ratio must the operation of transfusion rise in importance amongst the resources of our art; and, most assuredly, we are advancing towards both these conclusions. Dr. Blundell has gone far to lead us to the one, and some modern pathologists seem to have arrived at the other; for we find it boldly asserted by Andral in France, and by Dr. Carswell in this country, as well as by Symonds in the "Library of Medicine," a work of great promise, and now in progress of publication, that phthisis, cancer, fungoid disease, melanosis, and the whole tribe of malignant growths, are so many depositions from diseased blood-pathological principles, which Dr. Wilson has insisted upon in his lectures delivered in the theatre of St. George's Hospital, and in the anatomical theatre adjoining, since the year 1830; and in support of which an admirable course of lectures by Mr. Ancell, evincing great research and considerable ability, has just been published in your Journal.

Grosvenor-place, Sept. 28, 1840.

EXTENSIVE INTUS-SUSCEPTION.

To the Editor of THE LANCET.

SIR:—The accompanying morbid specimen, taken from the body of a child six months old, appears to me of sufficient interest to induce me to make it known to the profession through the pages of your widely-circulated Journal.

On the 6th of February last, I attended Mrs. C. (the mother) in labour, and when the child was born it was very strong and healthy; when about a month old it had a slight febrile attack, which was removed in a day or two by the usual remedies. At about three months old the mother had a very severe bilious attack, which so much reduced her strength and diminished the quantity of milk, that she engaged a wet-nurse for the child, who at the same time continued suckling her own. This person seems to have entertained a very favourable opinion of castor-oil, as a remedy for all "the ills that flesh is heir to," during the infantile portion of our existence. According to her own account, if the child cried, castor-oil was administered; if it were constipated, castor-oil was resorted to; when troubled with diarrhœa, the same remedy was used; if with wind, castor-oil was again called for, until, at last, he invariably cried much whenever he had a motion, and this symptom called for a further dosing with castor-oil. At length the mother, hearing that the child was constantly fretful, sent for him home on the 10th of August. On the afternoon of this day he had a small natural motion, which was the last he ever passed, although he lived until the morning of the 14th. On the morning of the 11th I was sent for, and found him in great uneasiness, and was shown the napkins that had been worn during the night; they were all stained with blood and a little mucus, but had no trace of anything like a natural evacuation. I ordered starch enemata, and gave an alkaline sedative mixture. The injections could not be continued, as the nurse said nothing would go up, and the attempt seemed to give great pain. He continued to take milk and water and a little veal broth (which he almost immediately vomited up), until the night of the 12th, when, finding him in a very weak and almost sinking state, I ordered him a teaspoonful of wine and water, under which he seemed to rally, and was somewhat better on the 13th.

On the morning of the 14th I was called to him rather early, and found him sinking fast. He died about half an hour after I left the house.

The following morning I examined the body, and, on laying open the abdomen, I noticed the distended and loaded state of the intestines, as in cases of imperforate anus, with this difference, that it was *only* the small intestines which were visible. No trace of omentum, cæcum, or colon was to be seen. I tied both ends of the small intestines, and removed them, when I was astonished at finding the rectum and sigmoid flexure very much enlarged, and filled with a solid mass. The cut portion of the ileum remaining from the small intestines, which I had removed, was connected with this mass. On slitting up the rectum, I discovered that the impacted contents consisted of the omentum, the cæcum, with its appendix vermiformis, and the few remaining inches of the ileum. One way in which this enormous displacement may be accounted for is, by supposing it to have commenced in the same manner that the rectum sometimes descends in chronic diarrhœa; the prolapsus in this case taking place just at the termination of the descending colon, where the sigmoid flexure is fastened down by the folds of peritonæum

No. 1, the ileum near to its termination; 2, the inferior part of the sigmoid flexure of the colon; 3, a part of the omentum; 4, the intus-susceptied mass of intestine, consisting of the lower part of the ileum, the cæcum and the colon as far as the lower part of the sigmoid flexure; 5, the opening by which the alimentary matters escaped into the rectum.

which confine it in its situation, and having once commenced a fold or prolapsus, every dose of castor-oil tended to increase it until that state of the gut was produced which terminated fatally. The small intestines contained about a quart of thin fæculent fluid, and just before death a little of this was vomited up.

Another, and perhaps more probable, method of accounting for it would be this. I have sometimes seen in post-mortem examinations contractions of the intestines (produced by spasm of the muscular coat), where the calibre of the gut has been so much reduced as to impede considerably the progress of the contents. Now, supposing, in such a condition of the intestine, any portion of fæcal matter were prevented passing this temporary structure, the natural consequence would be, that the bowel would grasp it more tightly, and the peristaltic action (so ably assisted in this case by castor-oil) would continue to force it onward with the enveloping gut, until inter-susception was produced; and thus it would be pressed on, fold over fold, and at length we might have this enormous quantity of the intestinal tube thus impacted and retained in its unnatural position.

H. B. Burford.

20, Grove-place, Lisson-grove,
Sept. 10, 1840.

SURPRISING RECOVERY FROM THE EFFECTS OF OPIUM.

To the Editor of The Lancet.

Sir:—You will greatly oblige me by the insertion of the accompanying case in an early number of your Periodical. Yours very respectfully,

James B. Harrison, M.R.C.S.L., &c.

Broughton, Manchester, Oct. 23, 1840.

The following instance of resuscitation must be allowed to possess much interest, both from the novelty of the method which was adopted to supply the natural movements of the chest, and the extraordinarily depressed state to which the patient was reduced. Though a considerable time has now elapsed since the occurrence of the event, it is impossible to review the circumstances of the case without a renewal of those feelings of astonishment which its happy termination was so well calculated to inspire.

As it is of importance, in cases of an extraordinary nature, that nothing be imputed to inaccuracy in the correct appreciation of facts, or to exaggeration in their details, it is always proper to increase, as far as possible, the testimony of individual experience. The subjoined statement is principally furnished from the notes of a gentleman, who has had many opportunities of witnessing instances of this kind, and to whose strict impartiality the most perfect reliance may be accorded.*

Case.—Caroline Mercy, æt. 32, was brought into the Manchester Royal Infirmary on the 16th of June, 1839, at half-past 3, P.M. On admission she was in a state of complete insensibility, so that it was impossible, either by pulling the hair, or pinching the skin, to excite any wincing or signs of uneasiness; nor was any effect produced by the sudden affusion of cold water. The pupils were contracted in an extreme degree; and the countenance presented that peculiar vacancy, or want of definite expression, which is so characteristic of the influence of opium; the breathing was very considerably embarrassed; the inspirations and expirations being separated by an unusually long interval, and accompanied by slight rattles; the extremities were warm.

As soon as she was put to bed, Mr. Gaskell introduced the stomach-pump, with which he injected and withdrew about a gallon of cold water; but towards the end of the operation, as the breathing became laborious, the rattle louder, and the surface assumed a more livid appearance, he thought it prudent to desist. He accordingly introduced into the stomach about two ounces of the liq. ammoniæ, contained in about as many quarts of water, afterwards removing with the pump as much as could be conveniently withdrawn. Large sinapisms were then placed down the back, but she appeared, notwithstanding, to get gradually worse; the respiration became more difficult, the lividity greater, and the pulse less full, and slightly irregular. Boiling water was now applied to the feet and legs, which had the effect of increasing, for a time, both the power and frequency of the respirations, but the benefit was only of a very transitory kind.

At about a quarter-past four, Mr. Gaskell thought it desirable to assist the respiration by artificial means, and he accordingly proceeded to adopt the following expedient: He placed a large pitch plaister on the abdomen, and by this means maintaining his hold, endeavoured to solicit the usual respiratory movements. This did not, however, give him so much assistance as he had expected, and he was therefore induced to abandon it, after a short trial. He then placed a similar plaister on each side of the thorax, by which he was able to command a more decisive effect: he thus, with the assistance of the man-nurse, alternately raised and depressed the ribs, in imitation of the customary actions. This plan was productive of some amendment; the lividity diminished, and the natural muscular efforts were more frequent and apparent; the as-

* Mr. Samuel Gaskell, the present superintendent of the County Asylum at Lancaster.

sistance was adapted as carefully as possible to the indications of nature. In addition to these means boiling water was occasionally applied to the arms and legs.

At about five o'clock I came to Mr. Gaskell's assistance. At this period the temperature of the body had become considerably reduced, and the conjunctiva had lost its injected character. I remember the patient's appearance was exactly that of a dying woman; and I believe it was the impression both of Mr. Gaskell and myself, that our patient could not survive long. The lips were of a livid colour; the expression of the countenance altogether cadaverous, and the rattle in the throat had become exceedingly loud. Boiling water poured on the legs did not now excite the slightest movement, so that, at this time, we were almost disposed to desist from further efforts. The circumstance, however, that whilst our exertions lasted, they were evidently productive of advantage, never suffered us to abandon them for long together.

In pursuing these attempts to maintain the respiration by artificial means, we had finally laid aside the use of plaisters, having our hands placed on the margin of the chest, and our fingers curved round the cartilages of the ribs. Situated on each side of the bed with our faces turned towards the feet of the patient, we could thus easily enlarge the capacity of the thorax by approximating the ribs, at the same time that they were elevated. In expiration the reverse movement could be accomplished with equal facility. By a steady continuance of our exertions, we had the pleasure of seeing a gradual improvement in our patient, and towards six o'clock the pulse had acquired the hard jerk which is commonly felt when the system is under the influence of opium.

Shortly after six o'clock, indications of returning sensation were evinced by occasional spasmodic quiverings of the muscles of the chest and abdomen. These spasmodic movements resembled the actions which usually denote approaching dissolution, with this essential difference, however, that they became more frequent and prolonged at each time that they were renewed.

A little after seven o'clock she raised her eyelids, and, at the same time, her left arm was slightly elevated. By persisting in artificial respiration, and using means to rouse sensibility, such as forcibly striking the face and chest with a wet towel, and applying ammonia to the nostrils, in about half an hour from this period the state of stupor had, in a great measure, disappeared. Instead of lying prostrate on the back, she now lay on her side, and was enabled to breathe without assistance. We then caused her clothes to be put on, and the vesicated parts being dressed she was taken out of bed, and compelled to walk about the room.

It is worthy of remark, that whenever, from fatigue, we were led to suspend our efforts to maintain the respiration, a degree of relapse universally followed; the lips became more intensely livid, the pulsations of the heart more feeble and irregular, and the respirations fewer, and accompanied with a louder rattle. On again resuming operations, the converse was also noticed. When the amendment became decided, and the sensibility returned, the rattle disappeared altogether; and this took place without any mucous expectoration, notwithstanding it was natural to suppose that a considerable quantity of mucus was contained in the air-passages. The subject was fortunately very favourable for our manipulations, as the abdominal coverings were sufficiently lax to admit the easy prehension of the chest. Of course the right hypochondriac region, from the situation of the liver, presented more difficulties to the operator on that side of the patient. As far as it could be done, we always waited for the natural indications of the act of inspiration, and paid great attention to regulate our movements in strict correspondence with each other. At the conclusion of our exertions, the cartilages of the ribs were slightly everted, and the cuticle removed in places by the unavoidable chafing of the hands.

June 17. It was found that she had been kept out of bed all night, which scarcely appeared necessary, and was, indeed, contrary to instructions. She had vomited through the night a light-brown coloured fluid, and complained of shooting pains in the head; the pupils were less contracted; the abdomen was painful and tender to the touch. She was directed to take linseed tea, and to have a poultice applied to the abdomen. The state of the pulse was not ascertained, owing to the vesicated condition of the arms.

18. The vomiting had abated, and the pain in the head was removed, though a feeling of lightness remained. The bowels were opened by half an ounce of castor-oil.

For several nights after this period she was troubled with a starting in her sleep, which, however, has been gradually removed by the administration of twenty drops of laudanum, given every night at bedtime. She also suffered much from the condition of her legs, which were severely scalded, especially on the posterior part, where they had been in contact with the hot water which had fallen on the bed; a superficial slough had formed on the dorsum of the left foot. On taking a full inspiration, she complained of some pain at the sides of her chest, where a degree of ecchymosis was discovered; a slight eruption, also, showed itself on the back, where the mustard poultices had been applied. The legs were healed after some difficulty; and, on the 27th of August, she was discharged cured.

The moral history of the case may, in it-

self, possess some interest; it is briefly as follows:—Her husband, who is a master-plumber, failed about four years ago, since which time he had lived irregularly; a circumstance which caused her to be much distressed and dejected in spirits. About two years ago she left her husband, and went to live with her mother, with whom she resided until the last two months; she then returned to her husband, who had promised an amendment, which, it seems, he did not keep. She again became low spirited, pawned her clothes, and was ashamed to go to her mother.

On Sunday, the 16th of June, she sat down to dinner at one o'clock, when, after a quarrel, she left the house and purchased sixpennyworth of laudanum, at four different shops. She says she obtained about a dessert-spoonful for a penny, and drank it as she purchased it. She then went to a neighbour's house, and can only recollect feeling heavy, and that she had brandy given her. She is of feeble frame, and was in delicate health at the time of her admission.

In conclusion, I may observe, that I have witnessed the employment of the foregoing method of resuscitation in other cases of suspended animation; and even in those which terminated unsuccessfully, it is probable that it accomplished all that could be effected by any contrivance for the purpose. Yet it may be thought premature, without further experience, to pronounce as to its relative advantages. In the mean time, it may, perhaps, be allowed, that by the mechanical expansion of the chest, we procure a more perfect and equable dilatation of the lungs than could otherwise be obtained; and that the ingress of cold air is thereby rendered more gradual, whilst it is less forcible and local in its operation. The action of the respiratory muscles may, moreover, by manipulations of this kind, be more effectually roused from a dormant condition. It must not, also, be overlooked, in estimating the advantages of this plan, that it calls for no lengthened preparation, and does not require the smallest aid from mechanical contrivances, which, however ingenious and valuable they may be, are not always at hand when they are most necessary to be used.

But whatever may be thought of the peculiar merits or demerits of the means resorted to for the restoration of the patient, the case may, at least, be considered useful, in showing us the importance of persevering efforts in the resuscitation of those cases where we have reason to suppose that asphyxia is only attributable to a loss of sensation. It is manifest that where the action of the heart is also destroyed, such attempts would be as unavailing as they would be unscientific; and it is to be regretted that the action of many of the narcotic poisons is of a twofold nature. "But, although the chief agency of these poisons (the narcotic) is on the sensorium," says a valuable writer,* "yet it is to be observed, that they all appear more or less to weaken, and often may irretrievably depress, the action of the heart likewise, and not merely by reason of their effect on respiration. And although there is one case on record where the fatal effect of opium on the human body was arrested by artificial respiration, after the natural had failed, yet, in general, the pulse becomes so feeble, the skin so cold, and the vital actions in the capillary vessels are evidently so much impaired, and under the influence of large doses of opium, before the respiration comes to a stand, that there is little ground for expecting that their fatal effect can often be arrested, even by this means, at so late a period."

DIVISION OF THE

CORRESPONDING RECTI MUSCLES

OF BOTH

EYES IN STRABISMUS.

To the Editor of THE LANCET.

SIR:—In THE LANCET of Sept. 19th, I alluded to a plan which I had conceived and practised for the cure of strabismus, when that of the eye first operated on had not been removed by the division of its affected rectus. As I have since then had an opportunity of practising the same operation on a number of patients in whom the distortion of the affected eye still continued after the division of its rectus, I wish to make the results known as early as possible.

1. Since my former communication I have operated upon twenty-five individuals; and in all of them with the effect of completely and instantly removing the strabismus, excepting in the case of a boy, æt. 16, whose abductor had long been paralysed (as was ascertained by his having no power of everting the affected eye when the sound one was closed), in consequence of a laden cart having passed over his head, and in whom I did not expect much amelioration, though anxious to try the effect of dividing the inner rectus, and of electricity applied through the medium of an acupuncture-needle introduced into the abductor. This patient now has the power of moving the eye slightly upwards and outwards, and downwards and outwards, though not horizontally. In another case, where the inversion of the eye still continued after the division of its own adductor, and until that of the adductor of the other eye was also ef-

* Vide Alison's Outlines of Pathology, p. 342.

fected, a slight inversion was apparent on the fourth day after the operation, though, till then, both eyes had been perfectly straight. By directing the patient to have the sound eye bandaged, the squint was removed in a few days. This practice was resorted to with confidence, as, on uncovering the sound eye after being a few seconds closed, it was not found at all inverted, as, on the contrary, it always is, when the affected eye is in that way straightened at its expense, before the operation. In three others a slight, though not constant, inversion came on along with a small button of granulations a few days after the operation; and as the degree of the inversion seems to depend on the irritation of the granulations, I expect the cure will be perfect when the wound is completely cicatrised. In all the other cases the cure, up to this time, is perfect; and in the greater number the cicatrices have healed within a fortnight.

2. The double operation which was first suggested and practised by me, and which appears to me, and to other practitioners here and elsewhere, who have witnessed its results in my hands, to be highly valuable on many grounds, *consists not in two single operations on eyes equally, or by turn affected while both are uncovered, but in the division of the corresponding muscle of the second eye, when that operation on the affected eye has failed to remove its squint;* it is based upon and adopted from the physiological considerations formerly hinted at, viz., the remarkable consent and consequent concurrence of both eyes in a vast majority, if not in all, cases of squinting, as shown by covering each eye in turn, and suddenly uncovering it while the other is directed forwards. The observation of this fact first suggested to me the idea that the temporary straight position of the affected eye after the division of its adductor, and when the sound eye was closed, would be rendered permanent by dividing the adductor of the sound eye, and by so depriving it, in a great measure, of its power of *relative* inversion: also, that the reason of the affected eye still remaining inverted after an operation on itself only was, an undue influence exercised by its other adducting muscles, viz., the superior oblique and the inner fibres of the superior and inferior rectus; and that instead of dividing, as the *next* step, any of these, the mutual or reciprocal convergence of the two eyes would be more satisfactorily removed by operating on the so-called sound eye. By such proceeding, too, we entirely avoid any undue prominence of the eye, so apt to result from the division of more than one of its *retracting* muscles: the motions of the two eyes would be left equally perfect, and the vitality of the cornea would, especially in cases where *radiating* conjunctival incisions were not resorted to, suffer much less risk of injury. As to the practice founded on these considerations, I have only to repeat that, since my former note, I have witnessed in nine of the twenty-five cases the immediate perfection of an incomplete rectification of the affected eye by dividing the corresponding rectus of the other eye. In three or four of the cases a slight divergence, so much yet so needlessly dreaded, as it would appear, by some operators, resulted, but gradually and totally disappeared after a very few days.

Eight of the twenty-five cases were cured by the division of the adductor of one eye, and the remaining seven had both adductors divided in consequence of the inversion of the second eye succeeding to the division of the adductor of the first. [The other case, viz, of paralysed abductor, has been already mentioned.]

Of the cases just enumerated, all were convergent except two, which were divergent. The first of them was a fine girl, ætat. 13, whose left eye, on her looking at any object placed before her, was straight, while a portion of the cornea of the right eye was concealed within the *outer* canthus. I divided the tendon of the right abductor, and on her then looking straight forward with the left, a small portion of the albuginea of the right eye was seen *external* to the cornea, which was still far from occupying the axis of the orbit, the eversion continuing confined to the right eye; the left abductor was then divided, and the cure was at once perfect. An equally happy result followed the adoption of this operation on a gentleman, whose left eye had been thirty years divergent. In *both* cases the abductors were found small and weak; in *both* the division of the abductor of the everted eye failed in *entirely* removing its deformity; and in *both* the division of the abductor of the second eye effected the instant and complete straightness of both globes.

The power of abduction of each eye was, to all appearance, perfect and natural after the operation. I have also found that the power of inverting the eye, though in different degrees, indisputably exists, after the division of its internal rectus, in every case on which I have operated, and in which, nevertheless, the strabismus was quite removed; though that result, *in cases of perfect cure*, does not, it would appear, coincide with the experience of Mr. Liston and others, though why not, I am at a loss to conceive.

3. I trust the preceding remarks, hastily put together, will render the principle and effects of my plan of proceeding perfectly intelligible,—that those which I formerly communicated to you may be egregiously misunderstood, is evident from what occurs in THE LANCET of October 3, in the lengthy paper written by Mr. Duffin. That experienced gentleman had, I venture to affirm, *never*, previously to the publication of my

first paper, practised the double operation *on the principle and with the views explained and advocated by myself.* Nothing can be more manifest, from the whole tenor and details of his former communications (as may be seen by referring to THE LANCET of Sept. 12 to Oct. 10 inclusive), *than that he had never been in the habit of dividing the rectus of the apparently straight eye* for the complete rectification of *the other eye, when it* had been imperfectly straightened by the first operation, viz., *upon itself*, in which the peculiar value of my operation consists; on the contrary, he has merely been in the habit of dividing the rectus of the second eye, *if the second eye was strabismal*, not otherwise. This is merely a repetition of the operation, and undertaken on the same grounds as that on the first eye, and, so far as I know, was first practised in this country by Mr. Lucas, and mentioned by him in THE LANCET, three or four months ago. I am, Sir, your obedient servant,

THOMAS ELLIOT, M.R.C.S.L.

23, English-street, Carlisle,
Oct. 12, 1840.

ANOTHER MODE OF OPERATING FOR STRABISMUS.

To the Editor of THE LANCET.

SIR:—I shall feel obliged by your inserting a few remarks on the subject of the division of the recti muscles in cases of strabismus convergens, and on the method adopted in performing this operation by my friend and instructor, Mr. Lane, of Grosvenor-place.

The operation I now submit for your perusal, appears to me to possess great advantages over any other method now in practice; by it the division of the recti muscles may be effected by one assistant and with one instrument, and without any previous division of the conjunctiva. Ten or twenty seconds is the time usually required to perform this operation. In thirteen cases which occurred in my own practice, three only required a longer period: in these three cases, in addition to the section of the internal rectus, it was necessary to divide a few of the tendinous fibres of the superior and inferior recti muscles; this was effected by passing a director under these muscles, and dividing their inner edges with a pair of sharp-pointed scissors. The plan I adopt in the performance of this operation is as follows:—An assistant, who is placed behind the patient, lightly closes the sound eye with one hand, and with the other depresses the lower lid of the organ affected. Supposing the right eye to require the operation, I place myself before, and rather to the right, of my patient; with the fore finger of my left hand I raise and secure the upper eyelid: the patient is now desired to turn the eye outwards, which is generally effected without difficulty; the point of the knife (which is described below) is now fixed upon the conjunctiva, in the interval between the inferior and internal recti muscles. By depressing the hand and cautiously passing the knife onwards, the conjunctiva is made to pass with the knife under the edge of the internal rectus: by using slight force the membrane gives way before the point of the knife, leaving it between the muscle and sclerotic coat; then, by gentle manipulation, the point appears at the interval between the internal and superior rectus muscle, still covered by the mucous membrane, which is pierced as before; the muscle and membrane now lie upon the edge of the knife, and are divided by moving the instrument onwards. The best idea I can give of the instrument referred to is, to compare its form to that of a sickle, with this exception, that it is not quite so much curved, and terminates almost imperceptibly in a partially-blunt point: the pattern may be had of Messrs. Philp and Wicker, of St. James's-street.

On perusing THE LANCET for the 5th of Sept., I find the following objections advanced to the use of the knife, without the aid of the director or hook:—"To the use of a knife without a director or hook, the objections are so obvious, that I believe few surgeons have tried the experiment, though, I regret to say, I have seen a surgeon of very great experience attempt this; and the consequences were, as might be expected, a wound in the sclerotica, and the escape of the vitreous humour." Such a catastrophe, without doubt, may occur; but I presume the knife used on the unfortunate occasion referred, must have been in shape and make like the sharp-pointed bistoury; but with the knife I have just described such an error cannot occur, unless very undue force be used, and that in quite a wrong direction.

In the operation for lithotomy, were the surgeon ignorant of the manner the knife should be lateralised, the pudic artery would no doubt be divided; so would the sclerotic coat in this operation be punctured, if the operator forgot that the point of his knife was against the sclerotic coat instead of the conjunctiva. The instrument used by Mr. Lane and myself has its point so far blunted, that it cannot be made to enter the dense sclerotic coat, unless very great violence be exerted, at the same time it is sufficiently pointed to pass with facility through the delicate texture of the conjunctiva. I am, Sir, your obedient servant,

HERBERT FAGG.

Bayswater, Oct. 15, 1840.

INSTRUMENTS FOR SQUINTING.

To the Editor of THE LANCET.

SIR:—So many instruments have been described for performing the operation for the cure of strabismus, that I feel it almost necessary to offer an apology when I recommend a new instrument, which I have found most serviceable in operations performed by myself.

The instrument I have to recommend differs from that used by Mr. French, in having the straight part of it between the hook and the handle made with a free-cutting edge, upon which the muscle is divided after it has been taken up by the hook, which in my instrument has a blunt edge.

In my own operations, as well as in those which I have seen performed by others, I have observed that the hook when made with a cutting edge has been quite insufficient to complete the section of the muscle; in short, instead of cutting its way out, and thus fulfilling the object for which it was made, it has in most instances required to be cut out with the assistance of the scissors. But when the knife here described is used no scissors are required; the muscle is made to glide over the blunt hook on to the straight-cutting part, to which a sawing motion can be readily given, and the division of the muscle is soon completed.

In the operations which I have usually seen performed, care has not been taken to bring out the point of the hook by the same opening in the conjunctiva which was made to introduce it; on the contrary, the point of the hook after passing under the muscle, has been brought out by a new opening made higher up than the original one. By this procedure nearly as much of the conjunctiva is divided as in those operations, where, by means of the scissors and forceps, the muscle and conjunctiva, together with the fat and cellular tissue connecting them, are clearly and extensively removed from the inner part of the eyeball.

The operation performed in either of these ways is liable to the serious objection, that the eyeball liberated so extensively from its attachment is too frequently found to protrude in a degree amounting to deformity. I have the honour to be, Sir, your obedient servant,

A. FARQUHAR.

19, Albemarle-street,
Sept. 24, 1840.

CORRESPONDENCE
OF THE
BRITISH MEDICAL ASSOCIATION WITH LORD JOHN RUSSELL,
RELATIVE TO THE
REMUNERATION OF MEDICAL OFFICERS
UNDER THE POOR-LAW.

Downing-street, May 20, 1840.

SIR:—In reference to your communication of the 11th instant, I am desired by Lord John Russell to inform you, that if it would be convenient to you, he would be much obliged to you if you could put before him in writing the suggestions you desire to make to him in an interview, relative to the remuneration of medical officers under the poor-law, as his time is very much occupied by the pressure of parliamentary and other public business. For this reason, also, I regret that an answer has not been sooner returned to your letter. I am, Sir, your obedient servant,

(Signed) C. G. HOWARD.

To C. H. R. Harrison, Esq.,
18, Southampton-street, Fitzroy-square,
May 29, 1840.

My lord, in compliance with the request which your lordship was pleased to make in your note of the 20th of May inst., and addressed to me by your lordship's command, the council of the British Medical Association beg to submit to your lordship the following suggestions relative to medical attendance upon the poor.

The poor-law commissioners have admitted the imperfection of the present system; they have stated their "present views as to medical relief" in their last report, and say that they shall be prepared "to take the necessary steps to give them effect, unless Parliament should lay down any other course which may be deemed preferable."

The British Medical Association coincides with many of the views of the poor-law commissioners, as they are, in fact, based upon the evidence of the medical witnesses before the parliamentary committee.

Without, however, expressing any distrust of the good intentions of the poor-law commissioners, or implying the least disrespect, we must state that the medical profession has much greater confidence in your lordship, and in Parliament, than in them; and that it would be more satisfactory to us, and we believe to the poor, if your lordship would lay down in the Bill now before Parliament the principles which should regulate medical relief. The control of the detail may be given to the poor-law commissioners; but we respectfully submit to your lordship, that a matter of vital importance to the health of the great mass of the people

should not be entirely left to their arbitrary arrangements, or be neglected by Parliament, as if it were a matter of subordinate importance. The principal evils of the present system are the inconvenience to which the poor are put in obtaining orders; and the losses they experience in time and money by the distance of the medical officers. They are thus often deterred from applying for orders until a mild disease has assumed a dangerous character, and remedies are unavailing. Medical practitioners have to complain of the system of tender, and of the inadequate salaries which they are driven to accept to meet the forced competition of a few inconsiderate candidates, in many instances strangers to the districts.

The council of the British Medical Association submit, that all these evils may be obviated by a clause in your lordship's Bill, empowering the boards of guardians and their officers, or the overseers of parishes where there shall be no boards of guardians to grant orders for medical relief. The orders to be of two kinds: 1st, orders to persons actually labouring under sickness; and, 2nd, orders to persons in health entitling them to medical relief during a limited time in case of an attack of sickness. The latter class of orders to be granted every quarter-day to persons on the pauper-list, and to be valid for the ensuing three months. The other orders to be granted in cases of casual sickness or distress; and to be valid also for three months.

The persons in possession of these orders would be permitted to select their own medical attendant, and would do so by placing the orders in the hands of any legally-qualified practitioner in the neighbourhood, at the discretion of the parties. A list of the practitioners who were willing to attend paupers should be on the back of the orders. The medical practitioner who accepted the order would, in case of sickness, write down in a space left for the purpose the age of the person, the name of the disease, the duration of the sickness, and the date of every visit; distinguishing the visits paid by himself from the visits paid by his assistant, as well as the visits paid at the patient's house from the visits at the surgery of the practitioner.

The nature of the treatment might also be specified in general terms.

The orders signed by the practitioner and the patient would be presented by him to the board of guardians quarterly, and would entitle him to a fee which would be equivalent, on an average all over the country, to 7s. 6d. a case.

Your lordship will be pleased to observe, that the charge includes the cost price of drugs and medical appliances—the compounding of drugs—the expenses of journeys, and the remuneration of skilful medical advice.

The cost price of efficient drugs alone is from 2s. 6d. to 4s. 6d. a case. This is shown from extensive hospital and dispensary returns, and from the army and navy estimates. (*Report from Select Committee on the Poor-law Amendment Act, Medical Inquiry, Appendix.*)

The average number of visits per case is seven; so that 7s. 6d. would cover the cost price of drugs, afford about 4d. a visit, and leave an inconsiderable surplus for journeys.

In their proposed rate of remuneration, the poor-law commissioners differ little from the above estimate.

The rate of payment may be fixed by your lordship at 7s. 6d. a case; to vary from 5s. in cities to 12s. in the country, where the population is thinly scattered, and the number of cases is inconsiderable.

Separate remuneration for midwifery, operations, and fractures—the amount to be previously fixed—or an order for any such case—might be given, to be of a certain value. Dr. Kay, or any practical medical man, may adjust the rate of charges in each union.

Where an order was given to a person in health, the event of sickness would be a contingency; but the value of this contingency is pretty well known.

In the army one hundred of the dragoon guards experience ninety-three attacks of sickness in the year; some of the attacks are slight, but the paupers are presumed to be more liable to sickness than soldiers at home, and do not experience less than sixty-seven attacks of sickness, requiring medical attendance, in the year. If the medical man was paid £25 a-year, or £6 5s. a-quarter, for one hundred of these orders, it would be, probably, equivalent to 7s. 6d. for every case of actual sickness.

The orders would be filed by the clerks of the guardians, and an annual digest might be drawn up from them, exhibiting the sanatory state of the union.

This is a rapid sketch of one of the plans which the council of the British Medical Association beg to submit to your lordship's consideration. It would, they believe, remedy the evils of the present system, and be satisfactory to the poor, the rate-payers, and the medical profession.

Another plan has been suggested. The rate of remuneration would be the same; but special medical officers would be appointed, as at present, to each district, and be paid by salaries equivalent to 7s. 6d. per case, with separate charges for midwifery, operations, and fractures. In this case the size of the medical districts should, on an average, not exceed twelve square miles; the population in cities not exceed ten thousand; and throughout the kingdom should be two thousand five hundred. To secure the efficiency of this plan, a medical director should be appointed to superintend the medical arrangements of the unions throughout

England and Wales. Doubts exist out of the profession as to the necessity of a medical director; and many persons maintain that the guardians and local authorities may manage all parochial matters perfectly well without a central board. The council of the association do not pretend to pronounce an opinion upon this question; but they do insist, that if there be a central authority possessing the power of dismissing medical officers, that authority should be competent, known, and responsible; standing, in fact, in nearly the same relation to the union medical officers as the director-general and physician-general do to the medical officers of the navy and army.

We shall not occupy your lordship's time by discussing the relative merits of these plans. We have brought the evils under your notice, and have endeavoured to prove that they can be remedied by a simple legislative enactment. The precise nature of the remedy the medical profession will be fully satisfied to leave in the hands of your lordship.

The rate of remuneration which we have proposed is higher than that prevailing at present, and we have laid some stress upon this point; but we have not done so from the desire to evade the consequences of fair competition, or from mercenary considerations. This question has been the cause of more agitation in the profession than almost any other, except medical reform; and many of the gentlemen who have taken the most active part in the discussion have not had any pecuniary interest in the matter.

Without flattering the medical profession, or claiming for them more disinterestedness than their fellow-citizens, we may safely assert, that they bestow more of their professional labours gratuitously, than either the clergy or the profession of the law. It is their lot, in the course of practice, to meet with many persons sunk by the accidents of fortune or life in the deepest distress, and it is a source of the greatest gratification to them to relieve these cases to the best of their ability; but a considerable proportion of the population require medical relief at the public expense, and it would be unreasonable to expect a large body of medical practitioners to discharge efficiently the onerous, constant professional duties of pauper medical attendance, and to supply medicines for a rate of payment less than we have specified. The present salaries do not cover the cost price of medicines; yet we have reason to know that many honourable medical men supply the poor with the same remedies as their private patients. It is, however, at a considerable sacrifice; a sacrifice which practitioners with large families, in depressed circumstances, and the underbidders in *tender* contracts, cannot and will not make. The consequence is, that the poor rarely get the remedies which are most efficient in their cases; the union officers can devote no time to their consideration, or send their apprentices undirected to conduct the treatment of the most serious diseases. All these evils, and the demand for adulterated drugs, are increasing under the present system; as the poor-law agents are too apt to regard the per-centage of reduction in the rates which can be expressed in tables, and look very attractive when not checked with the unrecorded per-centage of suffering and mortality, which the reduction implies.

The rate of remuneration, after paying for efficient remedies, would leave a very small surplus; but the connection of pauper with private practice, the check which the results of practice would furnish in the orders, the desire to investigate disease, a benevolent regard for the poor, and the honourable feelings which animate a liberal profession, would, we are confident, with the enactment in your lordship's Bill, secure to the poor patients the efficient medical relief of which they are at present deprived.

The council of the British Medical Association beg to acknowledge very respectfully the attention which your lordship has been pleased to promise to give to their suggestions; and to assure you, that by settling this long-agitated question, you will ensure the grateful thanks of the whole medical profession. I have the honour to be, my lord, your lordship's most obedient and very humble servant,

(Signed) C. H. Rogers Harrison,
Hon. Sec.

To the Right Hon. Lord John Russell,
Colonial Office, Downing-street.

It will be recollected that Lord John Russell withdrew his Bill; but he promised to introduce it in the ensuing session, when we sincerely hope he will satisfactorily settle the question of medical relief.

LINCOLN LUNATIC ASYLUM.

CONTROVERSY BETWEEN MR. HILL AND MR. HADWEN.

To the Editor of The Lancet.

Sir:—Mr. Samuel Hadwen was my predecessor as house-surgeon at the Lincoln Lunatic Asylum, during the period of fifteen months. I had for three years carried into effect the system of non-restraint at Lincoln; my work on that subject had been published a year; the great metropolitan institution at Hanwell, with nearly one thousand patients, had adopted the improvement, and humane men were everywhere alive to it, when Mr. Samuel Hadwen's jealousy could brook it no longer. He and some of his partisans

constituted themselves "governors," for the express purpose of breaking up the system. He began by publishing an attack upon me in the *Lincoln Gazette*, which I publicly refuted,* and further notice of his effusions in that quarter became quite unnecessary. He has now taken new ground in your Journal; and I most unwillingly notice his letter, dishonestly headed with a mutilated quotation† from my work, more especially after my former exposure of him; and this certainly shall be my last notice of him. It is not true that I published a syllable to his disparagement; and I defy him to produce a single document in his praise, which is not copied into my work. The very items which he produces in your Journal in his own commendation, are copied from the tables in my appendix, without acknowledgment. It is not true that he left the house without restraint, for a female who had been chained in bed all night was loosened on the morning of my entering on duty; and the restraint-book shows similar entries on six days out of seven of the week preceding. On the other hand, it is also untrue that not a single day had passed without non-restraint previous to his appointment; and this injustice to a predecessor, who had distinguished himself by a marked diminution in the number of restraints, shows that Mr. Samuel Hadwen can be as unscrupulous towards a predecessor as he has shown himself to a successor. Mr. Samuel Hadwen has stated in his own journal, that when he entered on his own duty he found only one patient under restraint. He gives sham tables of late restraint, dishonestly manufacturing them from seclusions; a means of control to which I have never objected, but which I very seldom found it necessary to adopt. Mr. Samuel Hadwen himself used seclusion very freely, though he affects so much compassion for the feelings of a patient who has been subjected to it. The same patient is elsewhere described as being unwilling to leave her room; and he must be aware that the greater part of this seclusion was in a spacious day-room, and partly for necessary medical reasons.

The seclusion in this case has been carried to an extent which I should not have adopted in my own practice, and I have seen her as house-visitor, so secluded, when she did not exhibit any signs of excitement whatsoever. He dishonestly mentions an increased establishment, and suppresses the fact, that such number of attendants has never yet been procurable, nor at the command of the house. When I entered office I found two nurses with twenty female patients, and four male attendants to thirty-eight male patients; I left office with a nominal establishment of five nurses to forty-eight female patients, and five male attendants to fifty-seven male patients; since that time the boards have judiciously added a head-attendant and a head-nurse, to pass from ward to ward, and keep a constant eye on the other attendants. He mentions servants discharged for striking patients; and since the abolition of the restraint system, even a single stroke is deemed sufficient cause for discharge, though under great provocation; under the restraint system, attendants were rarely, indeed, discharged for violence; nor could they easily be so, because the imposition of chains, and the pitched battles connected therewith, habituated the officers to violence, and covered every outrage, though notoriously exerted. In Mr. Samuel Hadwen's own time, an attendant did not scruple to give a patient a bloody nose in the presence of a party of ladies and gentlemen going round the house, and in the presence of Mr. Samuel Hadwen himself, who tells us that he did not see it, though every other person did see it.

The system of non-restraint has been lately very severely tried at Lincoln; the best and most experienced attendants have left the house, and have been replaced, often inadequately, sometimes not at all, though the proportion of violent patients must be perpetually on the increase, as the boards are compelled to limit the admissions to *dangerous* cases, from fear of overcrowding the house. The unfortunate young woman, who is selected as the victim, has been made much worse by injudicious treatment, and by the encouragement of her having been placed with weak, slight-made nurses; the extra attendant mentioned has never yet been procured. The case, Sir, is a regularly got-up case, exaggerated for effect, and such as I never found any difficulty in managing, when I had adequate attendants. Some of the details may prove neglect, but do not prove the necessity of restraint. If the household could have approached her morning and evening, and engaged in a regular pitched battle, for the purpose of chaining her up, on rising and at bedtime, and have dared to deliver her meals, surely they might have had intrepidity to enter her

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* As THE LANCET has nothing to do with the controversy in the newspaper, we have thought proper to modify the expressions of our correspondent with reference to his criticisms on the letter of Mr. Hadwen in the Lincoln journal.—ED. L.

† *Mr. Hadwen's quotation*:—"Restraint is never necessary, never justifiable, and always injurious, in all cases of lunacy whatever."—See *Lecture on the Management of Lunatic Asylums*, p. 21.

Mr. Hill's Lectures, p. 21:—"I assert then, in plain and distinct terms, *that in a properly-constructed building, with a sufficient number of suitable attendants*, restraint is never necessary, never justifiable, and always injurious in all cases of lunacy whatever."

room and clean it. I will venture to say, that neither this patient nor any one else exhibits at this moment a single personal mark of violence. In one word, Sir, the person who makes handcuffs and chains necessary, and who sets the whole staff of the Lincoln Asylum at defiance, is A WOMAN! So much, Mr. Editor, for Mr. Samuel Hadwen and his party; I have now done with them. This great and benevolent cause I will not again suffer to be contaminated by their petty jealousy, or party and personal feeling. I have the honour to remain, Sir, your faithful and obedient servant,

ROBERT GARDINER HILL.

EXTRACTS.

"At a general board of governors, held at the Lincoln Lunatic Asylum, on the 8th day of July, 1840:—

"Resolved, That this general board is highly sensible of the incessant and benevolent labours of the weekly boards, for many years, to improve the condition of the house and the comfort of the patients, and to protect the patients from the straitwaistcoat, chains, handcuffs, muffs, leglocks, and all other abuses of power, violence, oppression, and cruelty whatsoever.

"That the weekly board has shown the most patient and tolerant attention to every charge that could be made against the house, even from quarters open to the strongest suspicion; and that this board is sensible that such perfect freedom of inquiry, the freest admission of the public eye, the sash-doors, the employment of a head-nurse and head-attendant, the periodic examination of the patients' persons, the instant discharge of persons abusing their power, and also the utter discountenance of restraints, and the outrage and bad feeling necessarily arising from their use, are the true sources of protection to the patients.

"That the weekly board be instructed to keep a jealous eye upon the treatment of weak, imbecile, dirty, and harmless patients; it appearing to this board that such inoffensive patients, through their revolting and provoking habits, are, with the rarest exceptions, the only class of patients who have occasionally drawn the contempt and attracted any ill-usage from attendants.

"That the attendants and nurses of the house, since the abolition of restraint, appear to have conducted themselves towards the patients with great forbearance and humanity, with the exception of some individuals who have not left the house in credit, and who were not informed against by the well-disposed attendants, through a false principle of honour (a head-attendant and a head-nurse not then having been appointed); and that kind usage seems to have been, otherwise the general system of the house, with the exception of an occasional and rare act of irritation provoked by the conduct of some harmless patient.

"That no nurse or attendant be henceforth engaged in this house, except such as shall be of sufficient stature and strength, and that this more especially applies to the north galleries.

"That the searching, severe, and hostile inquiry made into the conduct of this house, has fully and clearly satisfied this board, that the non-restraint system is founded on the soundest principles, and is eminently conducive, by the feeling which it creates, to produce a mild demeanour towards the patients, and to place a lunatic asylum, in its spirit, tone, and general economy, on the footing of an hospital.

"That this board has now for many years estimated the ability and zeal of the successive house-surgeons, by the disposition which they may have shown to avoid the mischievous system of restraint, and that this board is now fully confirmed in this feeling."

ON THE STATISTICS OF

LUNATIC ASYLUMS.

To the Editor of THE LANCET.

SIR:—I cannot agree with your correspondent, Dr. Francis, that the returns I lately sent you of our asylum would have been enhanced in value by having been confined "to a shorter period of years," but will with pleasure state the average *annual* amount of mortality. I find during the twenty years, for which I sent you the returns, the average number of patients under our care was seventeen; and as during the twenty years, sixteen died, the annual mortality was a little under five per cent. It must be borne in mind that we do not select our patients, the only condition being that they should be of respectable stations in life. I mention this, as in some of the small establishments epileptic cases are refused, which, of course, materially affects the mortality. I believe under no circumstances should the deaths exceed seven per cent. annually.

When I first read the returns in THE LANCET, I could not give credence to them; I could not conceive that, under the most unfavourable circumstances, twenty per cent. of the patients would die annually. Such results are more befitting the pest-houses of the last century, than establishments professedly for the treatment and cure of insane patients. That serious abuses still exist in some of the asylums has been incontestably proved by the recent returns; and every humane man must be anxious to see them rectified, at once and for ever.

The most apparent as well as the most important evils are:—

1. The patients being improperly crowded together;

2. Want of medical care, and the requisite nursing;

3. Unnecessary coercion and restraint;

4. Want of sufficient space for recreation and amusement.

I believe the most ready and effectual manner to prevent a recurrence of these, is for the commissioners not to grant a licence for private and pauper patients to be received into the same house, nor to allow any establishment to receive more than forty private or sixty pauper patients. The person also to whom the licence is granted, and who is legally responsible for what occurs in the asylum, should be compelled to reside in it; and in future, no individual, who has not received a medical education, should be considered competent to undertake the charge of the insane. Can there be anything more absurd, than to allow any adventurer (who may have a house sufficiently large for the purpose), without any previous inquiry into his knowledge of the subject, to superintend the medical and moral treatment of so important a disease.

The public, in general, are protected to a certain extent from unqualified medical practitioners; and if the Legislature has found it necessary to shield those who have the power of judging and acting for themselves, how much more necessary must it be to protect those unfortunate persons, who, by the very malady under which they labour, are deprived of this power?

The great advantage, in my opinion, of the proprietor being compelled to reside in the house is, that he would ascertain it to be his own interest (supposing him to be actuated by no higher motive), as well as his patients, never to have recourse to restraint, unless the safety or well-being of the patient *absolutely require it*, and even then it should be used with the greatest mildness and discretion. I will not say more on this head at present, as I feel it would lead me to encroach too much on your valuable columns, but with your permission shall return to it at some future opportunity.

The necessity of cheerful and spacious grounds for the exercise and amusement of the patients, to which they should have access at all times, I need scarcely insist upon. No one in the present day considers a gravel-yard, surrounded by a wall, a suitable place for the exercise of a lunatic. I have thus briefly stated the evils I conceive to have led to the excessive mortality in the large houses, and the remedies I propose for them. They have the advantage of simplicity, and at the same time could immediately be acted upon. Should some such steps be taken, I feel confident, humanity would not again be shocked by such disgraceful results as these returns have exhibited.

There are other circumstances which require altering of less importance, and which will naturally suggest themselves to persons acquainted with the subject; one, however, I shall mention, though to some it may appear trifling, as I believe it very important, as regards the recovery of the patient; it is the propriety of each invalid having a separate bed-room. In some asylums, four and sometimes more, patients sleep in the same apartment with a keeper. During the night they disturb each other's rest, and render one another fractious and irritable. Lunatics are generally watchful; and to obtain for them tranquil sleep and rest is, in my opinion, a great consideration in their treatment.

I trust, Sir, you will keep your promise, and continue to agitate this painfully-interesting subject "until the condition of the lunatic ceases to be a disgrace to this country." I am, Sir, your obedient servant,

ARTHUR STILWELL, Surgeon.
Moorcroft-house Asylum, Hillingdon, near Uxbridge.

STUDIES OF MEDICAL PUPILS.

To the Editor of THE LANCET.

SIR:—As it appears exceedingly probable, that in consequence of the *complete inefficiency* of Mr. Warburton's Bill for Medical Reform, that you will yourself introduce one on a far more wise and liberal scale, and having for its object the establishment of a national faculty, allow me to suggest, that as the "apothecary's department" will be made essentially distinct from that which belongs to the members of the faculty, so also should the examination of the latter essentially differ from that which at present exists. One of the chief complaints against our modern education is, that the multiplicity of subjects of study completely confound the student, and induce him, instead of learning one topic thoroughly, to acquire a smattering of all; the consequence of which is, that he speedily loses all the information which he had gained, and, together with that which was useless, he unfortunately forgets, also, that which was in the highest degree important. Now, if the druggist were made to pass an examination in chemistry, botany, and materia medica, then the member of the faculty need only learn anatomy, physiology, pathology, surgery, the practice of medicine, and midwifery; and if he had those subjects alone to occupy his attention, previous to examination, I think it more than probable that he would exhibit a much better acquaintance with them than he at present displays. I am, Sir, yours truly,

F. G. JACKSON.

30, Church-street, Spitalfields.

THE LANCET.

London, Saturday, October 31, 1840.

THE appearance of the "*Medical-Profession Bill*," as it is called, is undoubtedly one of the most serious and important events which have latterly transpired in medical affairs. It is our "Eastern question." Mr. WARBURTON is, in his way, a cruel MEHEMET ALI; and, like that tyrant, smokes his hookah with an air of innocence, while the faithful followers whom he has led are slaughtered by his law. We have expressed our own opinions of the Bill honestly, as it became us; and shall notice now and then the way in which the measure is received by the associations, and other parties, who may be considered the organs of the medical profession in any part of the country.

With the reception of the Bill at the *British Medical Association*, and the large meeting at Exeter Hall, our readers are already acquainted. The *North of England Medical Association* is, we have reason to believe, a body of sincere, calm, resolute reformers, never shrinking from their duty: not led by men who have the slightest sinister purpose to serve, but identified entirely with the medical practitioners of the country. At their last monthly meeting, the following pithy resolution was passed unanimously:—

"That in the opinion of this meeting, the "Medical-Profession Bill, proposed by Mr. "WARBURTON, M.P., *is not suited to the "wants of the community, nor to the wishes of "the medical profession.*"

A gentleman, who is understood to be in some manner connected with the council of the Provincial Association, writes—"So "destitute is it of all the qualities which "should characterise such a Bill, *that we "are unable even to imagine any amendments "by which it could be modified into a suitable "measure!*"

The Irish Medical Association hesitates, deliberates, and has not, while we are writing, come to any decision. The council first resolved to discuss the Bill, *clause by clause*; and, subsequently, the secretary submitted to the members an *analysis* of the measure. In the mean time a letter, signed by "AN OLD AND OBSTINATE REFORMER," appeared in an Irish journal, descanting on the "truly *liberal, enlightened and comprehensive views* of Mr. WARBURTON;" and calling upon "all true reformers to rally, "like one man, around Mr. WARBURTON, "and this *Magna Charta* of the medical pro-"fession. Let all the medical associa-"tions," he goes on to say, "meet, and, "after *due deliberation*, give it the sanction "of their united approbation!" The editors of the *Dublin Medical Press* speak of this suspected gentleman in a highly complimentary strain, "as obstinate in the exe-"cution of every project for the improve-"ment of the profession, of which he is an "ornament!" He appears, however, never to have read the Bill: if he have, he has evidently many stronger claims of affinity to the proverbial animal, whose "obstinacy" he professeth to share, than that single word would imply.

We confess that this hesitation, with such an offensive measure before them, makes us tremble, not for the cause of medical reform, but for the character of the council professing to represent the Irish Medical Association. If the council of a Scotch reform association deliberated, we could understand it; we should know that it was in the blood, and that the slowness of deliberation increased the certainty of soundness in the resulting conclusions. But that a council of Irish gentlemen should hesitate, deliberate, and shrink from the frank expression of their feelings, when the honour of their profession is foully assailed—when a member of Parliament proposes to register their names by the side of all the ignorant druggists and mountebank quacks in the country—to allow these men "to practise medicine in chief"—and to levy a tax on the profession, the produce of which he refuses to entrust for one instant to their management, giving

all the patronage as well as the disposal of their funds—the control of their simplest acts, and of the appointment of their servants—to the political officers of the Crown, and appointing laymen, in the depth of his distrust, to sit at their council-boards, and watch their proceedings: to see, we say, under such circumstances, the members of a council in whom the medical reformers of Ireland have reposed the responsible office of their representatives, sit in equivocal silence, God knows how many weeks, under the mask of deliberation, does fill us with astonishment. The Irish heart beats right by instinct; their brethren here want to know what they feel, and not what they think; without any hesitation we say, therefore, if the council be misled by no sinister speculations, it is high time to avow their sentiments, or the Irish medical reformers must look elsewhere for leaders.

We have no reason to believe that any professed reformers in Ireland intend to *betray* their brethren, or to purchase places under the *Magna Charta* (!) Bill at the expense of the association; but their ambiguous acquiescence imperatively requires explanation, which some of the members in Dublin will not want courage to demand. Dr. MAUNSELL is a recent convert to reform, and converts are zealous, where is his newborn ardour? Mr. CARMICHAEL has pledged himself to the sacred cause of reform, by one of the most munificent gifts ever laid on its altar. Medical reformers respect him; they mistrust not his sincerity; they look up to him; they expect to hear his opinion on the singular course which has been pursued by the Dublin council, and if he have read the monstrous measure, to hear in his own words his opinion. Was it to purchase registrarships, registration, quack-enrollment, appointed members, lay control, unlimited taxation, stigmatised distrust for the medical profession, that he gave five hundred pounds? Has Mr. CARMICHAEL no advice to give the Irish Medical Association at the present juncture, so perilous to its reputation, and to the character of its officers?

Upon reading Mr. WARBURTON'S letters to the President of the *British Medical Association*, it will be seen that no person has formed a more correct judgment of the reception which the Bill deserved at the hands of the profession than Mr. WARBURTON himself. "I said, on a late occasion in Parliament," he observes, "and now repeat it, "that in bringing in *my Bill I expected to "meet with support from neither side*; not "from the medical corporations, because "they form no part of my machinery for "working the Act; not from the more sanguine of the *medical reformers*, because I "repudiated their favourite scheme of putting down the practice of the unqualified "by coercive measures, and because I "thought it necessary to fence round with "many guards and checks *any powers of a "legislative character, as regards medical "matters, with which my Bill might* SEEM "*to invest the councils and senate.*" That word "seem" says it all; the Bill is studiously framed so as to place the real control elsewhere, and to invest the representative bodies with *seeming* powers.

In another note the honourable member for Bridport returns to his principle: "You "will see *many indications in the Bill*, of "how little I am disposed *to trust medical "men* with the power of legislating in their "own affairs; *I would as soon confide such "power in their own matters to butchers and "bakers!*" This sentiment, the reporter remarks, was received with *hisses, and considerable disapprobation*, at the large meeting in Exeter Hall. Now, why these "hisses"—why this marked "disapprobation?" Was any insult implied in the comparison of "medical men" with "butchers and bakers?" None whatever. We accept the comparison. It would be strange, indeed, if the classes of men who supply the people with food, should be deemed by us dishonourable associates. If Mr. WARBURTON had used dukes, marquises, barons, bishops, or lawyers, in his illustration, a question may have arisen; but we are quite content to be classed with our friends the "butchers and bakers."

Nay, if, for the sake of varied expression, he should declare that he would trust medical men no further than chimneysweeps or tailors, tinkers, shipwrights or weavers,—any trade, in fine, or calling in an honest way,—we should not complain, knowing as we do that the humblest artisans are all useful, necessary members of society; doing by delegation what we should be bound to do ourselves, if they did not exist. But Mr. WARBURTON has, unfortunately, done more in his Bill than he has hinted at in his letter; he proposes to register us in common with bands of villains, who live by lying, robbery, and assassination,—QUACKS practising "medicine in chief;" while he refuses us the confidence, and the powers of self-government, which he has conceded to the incorporated "butchers and bakers" of towns, under the Municipal Corporation Act.

Medical men fill a highly-responsible position in society: the peace of families, the happiness of individuals, the public health, the lives of her MAJESTY'S subjects, are entrusted to their keeping. In the fearful tempests of disease, the safety or destruction of the vessel, most richly freighted with the fruits of knowledge and life, or the poorest bark, depends on them; one false move, in ignorance or oversight, and all is lost on the black rocks,—in the engulphing waters. It has been generally supposed, and maintained by the best writers on political economy, that the qualifications of medical men,—possessing in contingencies not infrequently occurring, the power of life and death,—should be tested; and that this preliminary examination was required rather by the interests of the community than by the medical practitioner.

"——— Maria aspera juro,
Non ullam pro me tantum cepisse timorem,
Quam tua ne, spoliata armis, excussa magistro,
Deficeret tantis navis surgentibus undis."

It has been contended that none of those active remedies, which, if injudiciously employed, become fatal poisons, should, under any circumstances, be administered by persons—alike unacquainted with their properties and their effects on the body—in different diseases and stages of disease; that while the public could form a tolerably accurate opinion of the qualifications of butchers and bakers, it was a safer step to test the qualifications of medical men in public examinations, conducted in the presence of judicious judges, and thus to acquire some guarantee of their efficiency. Again, it has been imagined that the medical profession may be entrusted with the same powers as are possessed by the self-elective medical bodies, which Mr. WARBURTON proposes to perpetuate; and that the representative councils would by cultivating science, zealously promoting the public health, and honestly managing their own affairs, at their own expense, be doing the community no injury. But with the doctor in Molière, who, nearly convicted of an ignorant transposition of the viscera, escaped, by exclaiming—"O, we have altered all that!" Mr. WARBURTON annihilates admitted truths with his "butchers and bakers," and his Medical-Profession Bill, conferring "SEEMING" powers of a legislative character.

The more narrowly the subject is examined, the more distinctly it will be perceived, that next to his invaluable services in the investigation of the abuses of the corrupt, irresponsible corporations, the best, highest, last benefit which Mr. WARBURTON can confer on the medical profession, and on the community, in connection with medical reform, is the consignment of his Bill to eternal oblivion.

WESTMINSTER MEDICAL SOCIETY.

Saturday, October 24, 1840.

Mr. STREETER, President.

ENORMOUS CONGENITAL CYST OF THE BLADDER.

MR. WILLIAM HARVEY exhibited a preparation, consisting of the kidney, aorta, bladder, and prostate gland of a patient, of whom he related the following particulars:—He was fifty-two years of age; his parents were healthy; he had suffered for some years with symptoms of bladder disease; he had

a sister who was also similarly affected. He had gonorrhœa in his youth; and he stated that he could never pass his urine in the presence of another person. Some years ago, as he was travelling from Edinburgh to London, he was very much pressed to pass his urine, but no opportunity presented itself for that purpose for several hours. On his arrival in London the more distressing symptoms of distention, under which he had so long laboured, suddenly ceased; his bladder, however, still appeared much distended, and he had considerable pain over the lower part of his abdomen and down his legs. Under pretty active antiphlogistic treatment he was soon relieved, but he was obliged to keep his bed for three weeks, at the end of which time he returned to his native city, Dublin. He now suffered from a very frequent desire to pass his urine, which was scanty in quantity, ropy in consistence, high coloured, and its passage through the urethra was followed by much pain at the extremity of the glans penis. He now consulted Sir P. Crampton, Dr. Colles, and other eminent surgeons in Dublin, who considered that the symptoms under which he laboured were dependent upon the pressure of a calculus in the bladder. After repeated soundings, however, no stone could be detected, but the prostate gland was discovered to be much enlarged. Various plans of treatment, among which was the operation of slicing the gland, were resorted to for the purpose of relieving the prostatic disease. The symptoms referrible to disease in the bladder were most effectually removed by the use of tobacco injections; one of which he describes as having kept him for a long time in a state of syncope, but was succeeded by a relief of his more urgent symptoms for five years. At the expiration of this time he got married, and the disease again returned in all its violence. Mr. Harvey now saw the case in consultation with Sir B. Brodie and Dr. Prout. The patient suffered at this time from great uneasiness in the region of the kidneys and bladder. The prostate was found enlarged, and the incision which had been made into it could be easily detected by examination through the rectum. The urine was scanty in quantity, was passed with difficulty, and contained mucus pus, &c. It was one day acid, one day alkaline, and, in fact, never appeared the same on any two successive days. Dr. Prout examined the secretion, but could arrive at no conclusion respecting it. Various plans of treatment were adopted: among the rest was the injection of the bladder on every second day, the employment of suppositories, cupping over the sacrum, and the passage of setons through the perinæum. Some relief was obtained from these remedies; but during the last few months of his life his sufferings were relieved only by the employment of opium in its various forms, and in very large doses. During the progress of the case it was necessary to pass the catheter frequently. It occasionally occurred that on the introduction of the instrument into the bladder, only a very small quantity of urine passed. On again introducing it, however, in a few minutes there was a very copious discharge of the secretion. After death the bladder was found to be considerably diseased: its muscular and mucous coats were much hypertrophied, and there were several abrasions on the mucous surface. At the superior and posterior part of the viscus was a large sac, capable of containing twelve or fourteen ounces of fluid; its parietes consisted of the entire structure of the bladder, with which its cavity was continuous by means of a circular orifice, about the size of half-a-crown. It would appear that this opening was surrounded by a kind of sphincter muscle, and hence the peculiar circumstance alluded to in reference to the use of the catheter was explained. The veins surrounding the neck of the bladder were varicose, and the prostate gland slightly enlarged. The ureter on the side nearest the sac, with which, however, it had no connection, was dilated, and appeared to allow of some regurgitation of the urine from the bladder. Mr. Harvey considered the case of interest from the very large size of the sac, and from the malformation being, in his opinion, congenital. He was fully aware that attempts had been made to explain cases of this description, by supposing that in the violent efforts of the bladder to evacuate its contents, a slitting of the muscular fibre had taken place, and through the aperture thus formed a portion of the mucous coat had passed, and formed the sac. However correct such an explanation might be in reference to some cases, it certainly did not obtain, in the present case, as a very slight examination would testify. There was a practical point connected with the case, respecting which he was desirous of having the opinion of the society; he alluded to the treatment of enlarged prostate by puncturing or slicing the gland, a plan of proceeding very much in fashion with some practitioners. He had carefully watched two cases in which this operation had been resorted to, and its effects were far from beneficial.

As no discussion followed the narration of this interesting case,

Dr. Guy brought before the notice of the society a subject connected with

THE HYDROSTATIC TEST IN CASES OF INFANTICIDE.

The fact to which he would allude he considered of value, as removing at least one of the objections which had been raised to the hydrostatic test. A short time ago Dr. Reid had presented him with a still-born child, which had been brought into the

world, at the eighth month of pregnancy, by the induction of premature labour, which was rendered necessary, in consequence of the mother having a deformed pelvis. The child presented by the breech, and the pulsation in the cord had ceased long before the head was delivered by means of the forceps. In fact, there could be no question that the child was still-born, and had not respired. Sixty-three hours after birth, Dr. Guy proceeded to examine the body. There was not the slightest trace of putrefaction, either externally or internally; the lungs were free from all trace of such a change. On looking at these organs, however, attentively, one or two vesicles, about the size of peas, were observed on the lower lobe of the right lung, and situated between the substance of the lung and the pleura. The appearance presented by these vesicles was precisely such as would indicate the presence of emphysema, if it could be supposed possible that emphysema *could* exist in lungs which had never been employed in respiration. He thought the presence of these vesicles sufficiently curious, to entitle the lungs to a place in the museum of King's College; he therefore put them in a gally-pot, intending to take them to that institution. On looking at the lungs again, in two hours after, he was surprised to find that the whole of the lower lobe of the right lung was covered with these vesicles, which gave the appearance of minute mercurial injection. He was now convinced that this appearance depended on an incipient change of structure in the organs,—in fact, on the first process of change which preceded the more ordinary signs of putrefaction. This fact explained those cases of supposed emphysema in still-born children; which affection was considered by some authors to offer a very valid objection to the hydrostatic test. It was to be regretted that, by claiming too much for this test, it had lost some of its just reputation. Many authors had pursued the subject rather as one of feeling than of science, and some had condemned the test with the anxiety of erring only on the side of humanity. In the case he had detailed, the body of the child was nineteen inches in length; from the head to the umbilicus it measured nine and three-quarter inches, and from the umbilicus to the feet nine and a quarter inches. The weight of the body was five pounds eleven ounces, or 39,813 grains. The weight of the right lung was 453 grains; of the left lung, 380 grains; the proportion the lungs bore to the body was 1 in 48.

Dr. Addison considered the communication of Dr. Guy of great importance, as removing one of the prominent objections to the hydrostatic test, and as showing the utter fallacy of those recorded cases of "emphysema of the lungs" which had been styled "congenital." He (Dr. A.) never could understand how it was possible for emphysema to be congenital; for he contended that it was uniformly the result of violence to, or obstruction in, the lungs. He had been sneered at, for promulgating this opinion, but he was convinced of its correctness.

A very long discussion now took place in reference to a question, as to whether any member had known a case in which an infant had respired previous to its birth, or rather during the act of parturition, the head being still in the passages?

Dr. Chowne remarked that, several cases were on record in which a child had uttered a vocal sound during the time that its head and entire body were in the vagina.* He had himself known of two or three breech cases in which the child had cried previous to the birth of the head.

Mr. Snow, in a case of breech presentation, in which he felt the cord to pulsate feebly, had passed a finger up the vagina into the mouth of the infant, and with another finger pressed back the perinæum, so as to admit a small quantity of air into the vagina. The result was, a distinct gurgle in the throat of the child, leaving no doubt in his mind that air had passed into the thorax; an opinion which was further strengthened by the pulsation in the cord becoming stronger.

Dr. Reid had repeatedly heard children cry when the head only was out of the vagina. He had heard the child make a guttural sound, also, in some cases of breech presentation, in which the head was still in the passage. Indeed, in one case in which the vertex presented, and the child was remarkably small, he heard the infant take a distinct inspiration before its head was in the world.

It was announced that, at the next meeting (this evening), Mr. Winslow would read a paper "On the Causes of Sudden Death."

MEDICAL SOCIETY OF LONDON.

Monday, October 26, 1840.

Dr. Clutterbuck, President.

WHAT IS THE IMMEDIATE PROXIMATE CAUSE OF ASTHMA?

The subject of asthma was introduced by the president, who remarked that the discussion at the last meeting evinced the great variety of opinions which were entertained by various members respecting the pathology of the disease. He thought we could only arrive at the truth on this head, by taking a simple case; for when it had become complicated, we are apt to lose sight of the original cause. He had intended to have

* See Medical Repository, vol. xix.

introduced a paper to the society on the subject, but had not had time to finish it; he was, however, unwilling to allow the subject to drop, and would, therefore, explain his views on the present occasion. He could not make himself understood more fully than by stating a case of what had been called nervous, spasmodic, or periodical asthma.

A young man, 24 years of age, had been affected with attacks of periodical asthma during the last seven years. He had been previously in good health, was well-formed, and lived without any particular restraint or otherwise. The attacks of asthma were of the usual kind; there was great labour and difficulty in inspiration, and the same labour and difficulty in expiration, except that a different set of muscles were at work. The paroxysms occurred occasionally, not with any regularity, but were invariably preceded by his catching cold. The attack lasted only a few hours, and was worse at night than in the daytime. During the paroxysms he rested on his elbows, and elevated his shoulders. At first there was no cough, but merely a dry wheezing; towards the close of the paroxysm cough came on, there was copious expectoration, and he then breathed with freedom. At the end of three years from the first attack he never breathed with perfect ease at any time, and became worse when obliged to breathe quickly from any exertion. The disease gained ground on him, and his general health was giving way. He became thin and emaciated, while his face assumed that bloated, dark, livid hue, which is characteristic of obstruction to respiration. He was treated, on the usual plan, by expectorants, blisters, and the occasional use of leeches, without any advantage. In this case, the disease appeared to be so intimately connected with catarrh, that he (Dr. C.) thought it was dependant on inflammation of the mucous membrane of the air-passages, and he viewed it as such. There was nothing, however, peculiar in this case; for he had always found that all cases of asthma were preceded by catarrh, provided he had been able to watch the disease. In these cases there was at first a want of secretion, and the air passed over what appeared to be dry passages; after a few hours, secretion came on, which becoming copious, the patient was relieved. There was considerable analogy in this respect between asthma and ordinary catarrh; the peculiarities of asthma, however, consisted in its periodical character, and in the extreme labour in respiration which accompanied it.

His (Dr. Clutterbuck's) first inquiry related to what might be the probable *seat* of the disease. There was no reason to consider that the upper part of the air-passages was affected. The feelings of the patient pointed to the chest, where he complained of much heat and soreness, such as might be present in inflammation of the mucous membrane. The seat of the disease was not ascribable to the air-cells, or the minute ramifications of the bronchial tube; for although the air was a long time in getting into the lungs, it did eventually do so; the slow expiration also was against the opinion of the air-cells being affected. He then concluded that the obstruction was in some intermediate part between the upper portion of the air-passages and the air-cells; and he believed that the ramifications of the bronchia before they terminated in the air-cells were the parts in which the disease was situated. What, then, was the cause of the obstruction? It was one evidently periodical, and only acting at times. This did away with the idea of permanent obstruction. Some had considered the obstruction to arise from spasm; but the commencement of the paroxysm and its termination were never so sudden, as would be the case if spasm were the cause.

He thought the obstruction was more reasonably accounted for by recollecting what takes place in catarrh; namely, a temporary thickening of the mucous membrane of the bronchial tubes from inflammatory action. But this, however it might explain the origin of the disease, would be hardly sufficient to account for its return, or for its habitual presence; for the paroxysms were produced without any cause of inflammation being present, as mental emotion, stomach affection, &c., when there was a strong predisposition to the disease. These, however, might be the secondary causes, the primary one being catarrh. It must not be forgotten that inflammation generated irritability, and rendered the affected part obnoxious to various irritating causes, which would not affect it in health. These sources of irritation brought a rush of blood to the thickened mucous membrane; this caused an increase of secretion, and the paroxysm of asthma subsided. Acting with this view of the pathology of the disease, he had employed small blood-lettings to the extent of four or six ounces, repeated from twelve to twenty times in the year, with the effect of perfectly re-establishing the health of the patient, and the total extinction of the disease; he had adopted the same mode of treatment in other cases with success. Large blood-lettings were injurious. He now recommended this patient, who had remained well for four or five years, to nurse himself for two or three days, when he caught cold; and on becoming at all feverish, as indicated by his tongue becoming furred, to lose six or eight ounces of blood.

Mr. HEADLAND believed that the affection of the bronchial tubes was not the original cause of asthma, but that the mucous membrane of these passages became affected by the action of various specific causes on the

system. Looking at the causes of asthma generally, he could not believe that it was connected essentially with catarrh. Asthma was produced by removing from one atmosphere to another, from a check of perspiration, the subsidence of an eruption on the face, disorder of the digestive organs, and other causes. The treatment we employed was not what we should resort to if the disease were inflammatory. He had seen cases, indeed, in which there was apparently inflammation of the bronchial mucous membrane, aggravated by blood-letting.

Dr. RIDGE related a case in which the attacks of asthma were usually preceded by symptoms of catarrh.

Dr. T. THOMSON had seen many cases of asthma, in which no physical or other signs of bronchitis existed. The causes and mode of relief were different in different cases; some were relieved by ether and opium, and some by the lobelia inflata. There appeared to be an increased and peculiar sensitiveness of the bronchial mucous membrane, but he did not consider this to be dependent upon inflammation.

UNIVERSITY COLLEGE HOSPITAL.

PUNCTURE OF THE KNEE-JOINT BY A NEEDLE, FOLLOWED BY ABSCESS AND DESTRUCTION OF THE JOINT REQUIRING AMPUTATION OF THE LIMB.—SECONDARY HÆMORRHAGE.

J. K., a delicate-looking boy, apprentice to a tailor, about fourteen years of age, was admitted August 14, under the care of Mr. Liston. The patient was affected with disease of the right knee-joint, produced from a punctured wound, inflicted by a needle, about four weeks before. The accident happened when he was climbing on the shop-board, and the needle, about one and a half inches in length, was driven into the knee, a little to the outer side of the patella, and broken into pieces. Two portions of the needle were soon found and extracted, but the pointed end was never discovered. A poultice was applied over the injured part, and the boy put to bed; the next morning, however, the master obliged him to continue his work, although the pain in the knee was very severe, and there was great heat, swelling, and redness of the joint. The consequence was, that he was again obliged to be taken home and put to bed, where he has remained up to the present time. The joint was at first leeched and poulticed, but an abscess formed, which, on being opened by a surgeon in attendance, discharged about half a pint of purulent matter. Since then, lotions and poultices have been applied, with the effect of causing a subsidence of the swelling and acute pain, but the joint is still tender, enlarged, and useless, and the boy's health is very much reduced by the continued discharge. At present, the knee is of a globular form, feels puffy, and is tender to the touch; the temperature is rather higher than natural. On the outer side, and above the patella, is an opening from which purulent discharge escapes in large quantities whenever the knee is moved or pressed. The probe introduced at this aperture may be made to pass along several sinuses leading upwards and across the patella to the inner side of the limb. There is some looseness of the joint, and any movement of it causes great increase of pain. The patient is pale and emaciated; bowels open; appetite indifferent; sweats at night, but sleeps well. Mr. Liston laid open the sinuses by means of a bistoury, curved and probe-pointed. Water-dressing, and the limb to be supported on pillows.

16. Discharge very great, and much increased when the thigh is held steady and the foot pressed upwards, so as to press the tibia against the condyles of the femur. When this is done, a glairy fluid, mixed with pus, escapes from an aperture in the middle of the sore, too small to admit a probe.

18. Much the same, as far as the knee is concerned; but he complains more of night-sweats, and is now much troubled with diarrhœa. Countenance very anxious.

20. Surface of the sore covered with sloughs. Discharge very fœtid, abundant, and mixed with the glairy fluid above mentioned, which escapes whenever the dressings are removed. Perspires rather less at night; appetite indifferent; pulse 110, small. Ten grains of disulphate of quina, ten grains of sulphate of iron, and two scruples of extract of gentian, to be divided into fifteen pills, and one to be taken twice a-day. Full diet, and half a pint of porter daily.

25. Much the same, except that the slough has separated, and left the ulcer cleaner. The granulations are large, pale, and flabby, and the discharge thin, and mixed with what appears to be synovial fluid. The limb to be fixed on a splint made to fit the posterior aspect of the knee, lower part of the thigh, and calf of the leg. Bandages to be applied from the toes to the middle of the thigh, leaving a space over the knee uncovered for the convenience of dressing.

Sept. 1. There is less swelling about the joint since the application of the splint and bandages; the ulcer is healing very slowly; the discharge is very abundant, flowing out in large quantities when the sore is dressed; sweats profusely at night; sleeps a great deal; appetite bad. To have two pounds of beef-tea and two eggs daily.

5. No change in the knee; discharge very profuse. The patient's strength is very much reduced; he is very much emaciated,

and becomes thinner daily. The eggs and beef-tea are almost the only articles of diet he can take with any appetite. He does not sweat so much at night, and his bowels are not too frequently opened. He does not suffer much pain when the limb is quiet, but sleeps nearly all the day and night, and is with difficulty roused and persuaded to take his food. Tongue clean; countenance constantly moving with convulsive twitchings when he is addressed. Mr. Liston desired that the parents of the boy should be informed that amputation would be the only chance of saving the patient's life.

8. The boy having consented, the operation is fixed for to-morrow. Bowels rather inactive at present; night-sweats again somewhat increasing. He had a mild aperient draught this evening.

9. (2 P.M.) Mr. Liston performed the flap amputation at about the middle third of the thigh; very little blood was lost; three arteries were tied. A piece of lint dipped in cold water having been placed over the flaps, the patient, [who bore the operation without a murmur,] was conveyed to bed, and wine and water administered in small quantities at intervals.

SIX P.M. Two small arteries have required ligature. There is still some oozing of blood, principally venous; the lint dipped in cold water is changed every ten minutes or quarter of an hour. The patient is cold, and perspiring copiously, but bears his suffering with great courage. He has frequently taken wine and water, and his pulse is quieter and rather fuller.

Between nine and ten o'clock, the oozing of blood having ceased, the coagula were cleared away completely, and the ligatures having been arranged at the angles of the wound, the flaps were held together over the bone, whilst three points of suture were introduced, and strips of isinglass plaister applied to bring the edges into close contact. The stump was then supported with pillows, &c.; brandy and arrow-root, cool, to be given directly, and, if the patient does not sleep before two o'clock, to give him an anodyne draught, containing one-third of a grain of muriate of morphia.

10. Slept very comfortably without the anodyne: the stump has been very quiet, and tolerably free from pain during the night. On examining it, the edges of the flaps were found quite pale and moist, not the slightest inflammatory action having taken place; the plaisters, also, had slightly given way; these were accordingly renewed, and a bandage applied over the stump and around the body in the usual manner, except that the end of the stump was left quite free.

11. The edges of the stump are now well in contact, the plaisters having held firmly, and the flaps having slightly swollen; rather more heat about the stump; no discharge; bowels open. The patient seems easier, and in very good spirits; there is already a very perceptible difference in his countenance. The three sutures were removed this morning.

14. Has been going on well since last report.

15. Last night the patient was awoke by feeling something trickling down his thigh, which he thought, for some little time, was discharge, but, on putting his hand to the stump, discovered it was blood.

Mr. J. B. Potter, the house-surgeon, was immediately called, and the bleeding was very soon stopped by elevating the stump, and applying lint dipped in cold water over the end of it, a piece of oiled silk being interposed to prevent the loosening of the plaister. The patient lost, perhaps, a couple of ounces of blood altogether; he was not in the least alarmed by the occurrence. Lint and cold water continued at intervals during the night. There was, however, no more bleeding. On examining the stump the blood seemed to have proceeded from the outer angle of the wound, and one of the small ligatures was found loose. The coagula were cleared away, and the strips of plaister renewed as before; the bandage was not disturbed.

16. Another small ligature came away this morning.

18. All the plaisters and bandages were removed to-day, the discharge having become abundant. Union has taken place along the whole line, although the granulations are somewhat stretched towards the centre. A strip of lint dipped in red wash was placed over the granulations, and covered with oiled silk, and then a roller was applied round the loins and the stump, so as to support the flaps. Health of the patient much improved.

25. The last ligature came away to-day. He has been going on excellently since the last report; he is now dressed, and sits up for some time every day. The stump is cicatrising gradually. Health very much improved.

Oct. 20. Since last report the patient has been doing well, and is now able to leave the hospital.

RETIREMENT OF DR. CARSWELL FROM UNIVERSITY COLLEGE.

DR. CARSWELL having been appointed physician to the King of the Belgians, has sent in his resignation, as professor of morbid anatomy in University College, and as physician to the hospital. On Dr. Carswell's retirement being known, a large meeting of the students took place, at which it was unanimously resolved to present an address to him, expressing their regret at the loss of his services, and their admiration of his character as an eminent cultivator of medical science, as a teacher, and as a man.

ON

OPACITY OF THE CORNEA,

PRODUCED BY

SULPHURIC ACID, &c.

By Robert Dundas Thomson, M.D.,

Physician to the Blenheim-street Free Dispensary and Infirmary.

[An Abstract of this Paper was read at the Medical Section of the British Association for the Advancement of Science, at Glasgow, 19th Sept. 1840.]

The intimate action of inorganic substances upon organised tissues, passing current and obscured under the terms *corrosion* and *coagulation*, has hitherto attracted little attention from medical men. When it is said that a portion of skin, or muscle, is corroded, Have we any definite idea in our minds when we make use of the expression? When we prescribe *destruction* to an unhealthy surface, or to a preternatural tumefaction, by cauterisation, it is obvious that our language is that of metaphor, and not of strict fact, because "matter cannot be destroyed;" we can only change its form. The surgeon often prescribes nitric acid in the treatment of phagedenic or chronic ulcers; and the stronger the acid is which he employs, the more successfully is the end in view obtained; that this change is produced in the surface with which the nitric acid comes in contact is alone a statement of the fact,—no matter is *destroyed*. By a close and careful study of the phenomena which occur during the action of the acid, we find that the cohesion of the particles of the muscle is greatly modified, and that gaseous matter is disengaged, which, by examination, proves to be azote or nitrogen. By the continued operation of the acid, the muscle is converted into a pale citron-coloured pulverulent mass. When this mass is carefully washed and examined, it is found to be a compound of fibrin, the essential constituent of muscle and of nitric acid: the removal of this disintegrated matter exposes a surface of healthy muscle. Such are the phenomena which occur during the action of nitric acid upon muscle, demonstrable to the senses. That there is a secondary, hitherto invisible, physiological action, is highly probable; but it is of great importance that we should know where our knowledge ends, and for what we are to inquire. Such may be viewed as a type of the action of acids upon animal tissue.

When salts of metallic oxides are brought in contact with animal matter, analogous phenomena are demonstrated, varying, of course, according to their several affinities. The author, at a previous meeting of the association, had brought forward a summary of his researches on the *modus operandi* of nitrate of silver, when employed as a caustic and therapeutic agent. The primary action was the same in both cases; viz., the disentegration of the tissue with which it came in contact, and the formation of chemical compounds, consisting of the nitrate and the organic tissue in various proportions. When the nitrate is employed externally, these compounds are separated from the living tissue, and leave a healthy surface beneath. When used internally, similar compounds are produced, and are absorbed or expelled from the alimentary canal, according to their solubility in the various menstrua with which they may happen to mix. In prescribing, therefore, nitrate of silver as an internal remedial agent, it would be necessary, in order to bring about the results which we anticipate, that we should have a correct knowledge of the state of the stomach when the medicine is introduced, and likewise of the properties of the new compounds which will inevitably result from its introduction into that viscus. That we do not possess this knowledge at present, is no argument against the propriety of our acquiring it; still less ought we to despair of ever attaining precise notions of therapeutic action, because it is a subject involved in much difficulty. The simplest and least complicated mode of studying the action of chemical agents upon animal tissues, is to watch closely the phenomena which occur when the former are mixed with the white of egg. The results afford a type of therapeutic action, in relation to fluid organic matter, or what ought to be termed incipient organism. The next fluids which approach white of egg, in simplicity of composition, are serum and mucous secretions. But the least complicated substance which has attained to regular organic structure, and whose affinities with chemical agents are most readily examined, is the eye. The anatomical structure of the transparent part of the eye, according to the most approved dissections, is sufficiently simple and beautiful. Anterior to the cornea, and acting as a safeguard in respect to sensibility, is the conjunctiva; and posterior to the conjunctiva, is situated the cornea, which consists of layers of solid albumen, alternating with strata of albuminous fluid,—incipient laminæ, as it were.

Mulder has lately endeavoured to show that the substance of the crystalline lens differs considerably from albumen, and deserves a new name, which he has fixed to be *protein*. Berzelius had originally pointed out the fact that the crystalline lens, when acted on by an acid, does not coagulate into a cohering mass, but becomes granular. Mulder prepared what he terms *protein* ("Annalen der Chemie und Pharmacie," xxxiii., 3, 361,) by washing the crystalline lens with water, in order to break down the cells, mixing with water, and then filtering; it is then coagulated in a water-bath. After being dried and powdered, it is heated with

boiling water and alcohol, and then dried at 266°: the substance thus procured possesses all the properties of albumen, with the exception that it is very easily reduced to an impalpable powder. Mulder considers the lens as composed of one atom sulphuric and fifteen atoms *protein*; the constituent of the cornea seems to lie intermediate between albumen and protein. It is but justice to state, that Dr. Prout, as early as 1819, had pointed out the existence of what he termed *incipient* albumen in the chyle; a modification of albumen corresponding in some respects to the *protein* of Mulder. The consideration of these important facts will be found of great interest in the study of the action of chemical agents upon organic tissue, as they afford a decided key to precision.

When nitrate of silver is brought in contact with the cornea, the formation of a white curdy matter is the first result which proceeds from the decomposition of the common salt and mucus contained in the fluid which lubricates the eye. If the quantity of caustic is sufficient, the next effect is, to act upon the solid organised matter which is speedily disintegrated, and new chemical compounds of nitrate of silver and albumen, or protein, produced. The most marked action, however, is that which takes place when the nitrate is made to act upon a blood-vessel; the coat of the vessel becomes first white, and may speedily be separated and rubbed off by the point of the finger; when it has penetrated into the interior of the blood-vessel, it immediately acts upon the fluid contained within it, and solidifies it by uniting with the solid matter of the blood, and forming definite compounds with the salt and organic matter: this action, which is usually obscured under the term coagulation, has been recently attracting more attention. The experiments of Mulder upon the atomic weight of organic matter exhibit, in a clear and distinct manner, the reasons why a comparatively minute quantity of inorganic matter should produce such an influence upon a very large proportion of organised tissue. Thus, 218· grains of silver, combined with 7447· grains of albumen; the bulk of the former is comparatively insignificant when placed in contrast with the latter; and hence we can discover the cause of such extensive action upon animal organs when nitrate of silver is brought in contact with them. The study of the action of nitrate of silver, although it is involved in much difficulty, both in a physiological and chemical point of view, affords a facility in the investigation of the *modus operandi* of other chemical agents, inasmuch as the nitrate may be procured in a pure state; and the results of its combinations with the bodies with which it mixes, are more readily examined and analysed than those formed with more volatile substances.

In following up the action of nitrate of silver with that of sulphuric acid, some facts must necessarily be borne in mind with respect to the natural condition of the cornea, and the action upon it of more simple agents. When, for example, heat is applied in the neighbourhood of the dead cornea of the sheep, a dulness or opalescence is produced, which appears to be partly due to the exsiccation of the membrane, and partly to the coagulating action of the heat upon the albumen retained in solution by the fluid layers of the cornea. No symptom is more familiar to the physician than the dull aspect of the cornea, when a local disease has degenerated so as to affect the system, or when febrile action has set in, and harassed the nervous and absorbent systems. But the glazed appearance of the cornea is still more obvious, when, after some exhausting disease, such as typhus fever, the patient lies prostrate, insensible, or is only capable of indistinct perception when roused by stimulants or mechanical agents. In this condition of the system we have the action of the absorbents progressing with undiminished vigour, and, perhaps, it might be said with increased energy, under the usual mode of treatment; if the views of physicians be correct, which consider the employment of mercury as a powerful stimulus to the whole absorbent apparatus, the result of the action must be the absorption of the more liquid portions of the fluids connected with the various tissues of the animal economy, and the consequent thickening and opacity of these portions of organism which, in their natural state, are perfectly transparent, and in certain instances quite limpid. The imitation of this action is well exhibited, when we take a solution of albumen and allow it to evaporate spontaneously in a watch-glass, porcelain basin, or other shallow vessel. A good illustration is also afforded when we spread out a portion of the cornea upon a plate of glass; in the course of a few minutes it becomes merely translucent, and ultimately opalescent. But a similar appearance, viz., the glazed aspect of the cornea, is exhibited even in the cornea of animals which have been healthy previous to suffering a violent death, because the action of the absorbents continues after the motion of the heart has ceased.

A portion of the dead cornea of the sheep was cut out, spread on a plate of glass, and introduced under the object-glass of a microscope. It was found to present some degree of opalescence, in consequence of the vital action being absent, and from the thickened aqueous humour being in contact with the posterior surface, numerous dark spots were visible all over its surface; but the whole membrane was translucent: to the naked eye, by transmitted light, it was quite transparent, but by reflected light it possessed a milky aspect. A glass rod was

now dipped into oil of vitriol, and then brought in contact with the cornea: at first the sulphuric acid appeared to flow freely over the surface of the membrane, and to remain transparent, but in a few seconds it began to assume some degree of turbidness; in half a minute a milkiness was apparent, and in one minute and a half perfect opacity had taken place: the portion of glass and membrane attached were now immersed in water, and gently sponged, so as to remove all excess of oil of vitriol; it was then removed from the liquid, and dried. Upon examination it was found that the surface of the membrane, in contact with the glass, was quite entire, and remained in its natural state; while the surface, on the contrary, to which the acid had been applied, was white and opalescent, although smooth, and without any appearance of having been corroded, or irregularly acted upon; the action of the acid in this instance appeared, therefore, to be chemical, and quite distinct, on a superficial view of the subject at least, from that corroding action which is so familiar, in which, when strong sulphuric acid is made to act with energy upon organic matter, the aqueous part of the tissue is removed by the acid in consequence of its affinity for water, and a black-looking matter, which is carbon, is the principal residual product: the first action, viz., that of oil of vitriol upon the cornea is exemplified, when we pour sulphuric acid into a solution of albumen, or white of egg, coagulation is the result; but there still remains a question for solution, viz., the nature of the change which takes place during the coagulating process, or What is coagulation of albumen when produced by the action of sulphuric acid? Oil of vitriol, as it occurs in commerce in this country, is an exceedingly impure substance, when made by the process from Sicilian sulphur; a method which is fast going into disuse, in consequence of the high price of sulphur: it contains nitric acid, muriatic acid, arsenious acid, in different proportions; the former is present to a considerable extent, as can be readily demonstrated by introducing a few drops of muriatic acid into a portion of it, immersing a piece of platinum wire, and then applying heat, the platinum dissolves with great rapidity; a phenomenon which only occurs when muriatic and nitric acids, a mixture termed aqua regina, are present. The other impurities exist in oil of vitriol, however, in much smaller quantities; and, therefore, we may consider that nitric acid is the only agent which can possess any influence, besides the sulphuric acid, in the process under consideration. As, however, pure sulphuric acid, which may be obtained from the Nordhausen acid, by boiling with sulphur, has a similar action upon the cornea to that of the oil of vitriol of commerce, it may be concluded that the peculiar influence of the nitric acid contained in the latter may be viewed as insignificant. The product of the action of sulphuric acid upon the cornea is well illustrated, by the consideration of the nature of the compound which is produced, when sulphuric acid is brought in contact with albumen, or what is better suited by analogy for our purpose in the present instance, with the matter constituting the crystalline lens of animals, termed, as has been already mentioned, by Mulder, *protein*.

When the substance of the crystalline lens, prepared by the mode described, is placed in its dry state in concentrated sulphuric acid, it swells up into a translucent gelatinous-looking mass. If water be added, it shrinks into a hard powder, which is an atomic compound, consisting of one atom sulphuric acid, and one atom protein; or in numbers—

Sulphuric acid..	1 atom	8·31
Protein	1 „	91·69

This compound is *proteo-sulphuric acid*.

The product of the action of sulphuric acid upon the cornea of the eye, appears to be an analogous combination.

When the experiment which we have detailed has been performed in the manner directed, the cornea may be considered as covered by a layer of proteo-sulphuric acid. If we employ the point of a sharp lancet, and make an incision through the membrane parallel to the axis of the eye, the preternatural product can be distinctly observed of equal thickness throughout. The acid has not penetrated more deeply in one portion than in another; its action has been uniform. If a section be now made at right angles to the previous incision, the same uniformity of action is demonstrable. The preternatural compound may be dissected off, leaving the cornea beneath entire; the same object can be effected by scraping off the opaque portion, but in the latter case the surface is more uneven and rugged. Under the microscope the irregularity of surface appears to be obviously due to the want of uniformity observed in the detachment of the opacity. This mode of removing the preternatural from the entire portion of the cornea enables us to discover a remarkable fact, which seems to add new evidence to the opinion stated by the author at the Bristol meeting of the association, respecting the formation of false membranes. For if the point of the lancet be slightly inclined, and if the operation of scraping be performed carefully, entire portions of the compound may be detached in a continuous manner, preserving to it all the appearance of a distinct membrane, and leaving the cornea beneath entire and transparent. The simplest mode of affording an explanation of the facility of detachment, is by considering that the acid

penetrates the exterior solid layer of the cornea, and reaches the liquid stratum, beyond which it has not time to pass in the short space to which we have confined the action of the oil of vitriol in the experiment previously detailed. The liquid layer thus suddenly solidified becomes, in some measure, an external or foreign body, and may be detached from its adjacent solid stratum. The analogy of this preternatural deposit to that of false membranes, appears to depend upon the following particulars. In croup, for example, the secretion of the mucous membranes of the bronchial apparatus, which in the natural state is alkaline, has been found, in such instances as have been carefully examined, to afford an acid reaction for at least a portion of the time during which the affection exists. The formation of the false membrane in this disease would appear, therefore, to depend on the affinity of the free acid developed, for the albumen contained in solution in the mucous secretion. The same reasoning applies to the production of the coagulated clots of membranous matter which so frequently occur in bronchitis; in which disease the author has had frequent opportunities of ascertaining that an acid is secreted along the whole course of the bronchial tubes. He has, therefore, been in the habit of prescribing in such diseases for some years, with a decidedly ameliorating effect, the inhalation of the fumes of ammonia, exhibited either by the introduction of caustic ammonia, or carbonate of ammonia, into hot water, and respiring over the vapours emitted. In balanitis an analogous membrane is deposited; but in all these cases it cannot fail to be observed, that there is a tendency in the system to throw off the preternatural deposition as soon as the object of its formation has been attained. In croup and bronchitis, we frequently observe the expectoration of portions of membrane, and in inflammatory affections of the mucous membrane of the intestines, the expulsion of detached portions of membranous matter is a frequent occurrence. While in those instances, where opacity of the cornea has been occasioned by the presence of sulphuric acid, no amelioration of vision is ever effected by the natural process; the patient continues blind as long as life exists. The reason of this, however, appears sufficiently obvious. In those instances, in which the membrane is constructed from the constituents of the mucous secretion, it is completely separated from the organism; and, therefore, may be readily separated by the simplest mechanical means, such as the rapid expulsion of air, accompanied by some muscular spasmodic action, as in coughing, and the friction of adjacent parts, as of the prepuce in balanitis. But in the example of the cornea, where there is not sufficient decomposing action to interrupt the continuity of the membranes, the altered membrane becomes incorporated with the organic tissue, and included in it; as in the case of what are termed deposits of lymph, exhibited in the form of white specks, either situated exteriorly, or between the layers of the cornea. The position of these is a highly-important study, in a remedial point of view.

The author's attention was attracted to the consideration of the action of sulphuric acid upon the cornea, from having attended a case lately with Dr. Maddock, of Judd-street, in which permanent opacity of that membrane was produced by contact of a very short duration. The case formed the subject of a trial at the last sessions of the Central Criminal Court. A woman, in the neighbourhood of Brunswick-square, in a fit of rage, threw a quantity of oil of vitriol (which was standing on the table in a cup, and which she had purchased for the purpose of cleaning brass,) at the face of an unfortunate cab-master who had offended her. The acid, according to the statement of the sufferer, remained in contact with the eye for no longer a period than two minutes, when he had an opportunity of washing it off with water; yet the cornea was white, opaque, and vision was destroyed. In the course of two days, inflammation of the cheek and eyelids had set in, and continued for some time, when it was ultimately removed by appropriate means. The development of the *modus operandi* of the acid would appear to render obvious the clue to the proper mode of restoring vision in such cases, and may, perhaps, lead to the more accurate investigation of deteriorated vision, depending upon the deposition of lymph and albumen.

CLUB-FOOT AND MUSCULAR CONTRACTIONS.

To the Editor of THE LANCET.

SIR:—Should the following statistical report of the out-patients admitted at the Institution for the Cure of Club-foot and other Contractions, No. 6, Bloomsbury-square, since the opening, July 3, 1840, be worthy of notice, it is quite at your service.

I am, Sir, your obedient servant,

R. W. TAMPLIN,
Surgeon to the Institution.

29, Great Queen-street, Lincoln's-inn-fields,
Sept. 22, 1840.

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13 cases of talipes varus of both feet.
4 ditto of right foot.
3 ditto of left foot.
3 cases of talipes valgus of both feet.
2 ditto of left foot.
1 ditto of right foot.
1 case of talipes equinus of left foot.

1 case affected with talipes varus of the left foot, and talipes valgus of the right.
1 case with talipes valgus of the left, and talipes calcaneus of the right.
1 case of partial anchylosis, or contraction of the knee from "white swelling."
1 ditto from mechanical injury.
2 ditto from rheumatic inflammation.
1 ditto from erysipelatous inflammation.
1 case of contraction of all the flexors of both thighs, knees, and feet.
1 case of contraction of the flexors of the wrist and fingers (left).
2 ditto of contraction of the flexors and pronators of the wrist.
1 ditto of contraction of the elbow (right).
1 ditto ditto, and wrist.
1 ditto of all the flexors of the left upper extremity, combined with contraction of the gastronemic muscle.
1 case of contraction of all the flexors of the right upper extremity.
1 case of partial anchylosis of the second and last phalanges of the right hand.
1 case of partial paralysis of the lower extremities.
5 cases of inward inclination of both knees, commonly called "knocked knees."
6 cases of inward inclination of both knees, combined with curvature of tibiæ.
1 case of inward inclination of the right knee.
5 cases of rachitic curvature of the bones of the legs.
6 cases of rachitic curvature of the bones of the legs and thighs.
8 cases of contracture, or false anchylosis of the hip.
3 cases of spinal curvature.
Total, 78.

Of the cases of talipes varus, 16 were congenital and 4 non-congenital.

Of the talipes valgus, 3 were congenital and 3 non-congenital.

One case of talipes varus, combined with club-hand.

Another with contraction of the sterno-mastoid.

A third with congenital absence of the phalanges of the fingers and toes.

A fourth with great inward inclination of the knees.

One case of talipes valgus was combined with congenital malformation of the bones of the leg, and absence of one of the phalanges.

In 14 cases of talipes varus, the tendo Achillis alone was divided; and in one unusually severe congenital case, æt. 26, I found it requisite to divide the tendons of the anterior and posterior tibial muscles, the long flexor of the great toe, the tendo Achillis, and plantar fascia in both feet.

In 10 of the above cases the distortion was completely removed in a period of from three to six weeks; the remainder continue under mechanical treatment.

In one case of talipes valgus, the peronei tendons, and in another the tendo Achillis only; the remainder being treated solely by mechanical means.

It is worthy of remark, that one case only of talipes equinus should have presented itself; the patient was cured by division of the tendo Achillis, and walked well at the expiration of a month.

* Three of the cases of inward inclination of the knees were treated by the division of the biceps flexor cruris tendon, and fascia lata; the remainder are under treatment solely by mechanical support.

In one of the cases of contracted knee, an adult about forty years of age, the tendons of the semimembranosus semitendinosus and biceps femoris were divided a month since, the limb being already nearly straight.

Three months not having elapsed since the opening of the institution, renders a statement of the result of the treatment of a majority of the cases at present impossible, as in many cases a longer period is requisite for their cure.

THE NEW "VACCINATORS" IN BRISTOL.

To the Editor of THE LANCET.

SIR:—The following is a list (copied from the "Bristol Mercury") of the eighteenpenny and the would-be eighteenpenny vaccinators of this ancient city:—

Mr. W. Tyler Smith, Old Market-street.
Mr. C. J. Hanson, Park-street.
Mr. J. H. Bell, Stoke's Croft.
Mr. A. N. Ruddock, Unity-street.
Mr. J. Godfrey, Bridge-street.
Mr. J. Baker, Stoke's Croft.
Mr. S. Goldney, Park-row.
Mr. J. B. Prowse, St. James's Barton.
Mr. A. Smith, Milk-street.
Mr. F. Fryer, Redcliff-street.
Mr. A. Grant, Dolphin-street.
Mr. J. C. Neeld, Stoke's Croft.
Mr. T. Shorland, Bishop-street.
Mr. W. James, Old Market-street.
Mr. T. Hawkins, Newfoundland-street.
Mr. Brigstock, Redcliff-hill.
Mr. E. Williams, Stoke's Croft.

I am uncertain whether there is more than one of these individuals who is not a member of the Royal College of Surgeons: I know that they were *not all* stimulated by dire necessity. The five first were the successful candidates. I am, Sir, your obedient servant,

A MEMBER OF OUR FAST-SINKING PROFESSION.

Bristol, Oct. 14, 1840.

* It is the opinion of Dr. Little (with whom I have the honour to co-operate), that the distortion in these cases is maintained and augmented by muscular action; and certainly the extremely rapid restoration of one case a lad aged eighteen, of remarkable muscular development, in which I operated, can leave no doubt that such is the fact.

THE VACCINATION ACT.

ESPRIT DE CORPS OF THE SURGEONS AT ST. COLUMB.

To the Editor of THE LANCET.

SIR:—You will remember that in a recent Number of THE LANCET you were so kind as to insert a communication from me explanatory of the manner in which the surgeons resident in this town had acted in reference to vaccination-tenders. They were of opinion that as an obligation already existed on their part to vaccinate paupers until the termination of the current poor-law year, they might most reasonably expect to receive the reduced fee of 3s. for all other persons, not in a condition of pauperism, in place of the usual 5s., in general practice; and I am happy to say that their medical brethren resident in other parts of the union took, without exception, the same view of the subject.

The guardians, in reply, have, with a becoming liberality of feeling, and, I believe, a disposition to act justly towards all parties, proposed 2s. 6d. for each case, *paupers included*. Now, by this arrangement, the medical contractors would be gainers, in a pecuniary point of view; but they feel, at the same time, that by adopting it they would be wanting in consistency: it has, consequently, been preferred by them to decline, respectfully, the proposition.

How desirable is it that an *esprit de corps*, a liberal feeling, and a free-masonry of sentiment should exist amongst the members of the healing art, instead of those rivalries, jealousies, and heart-burnings which now so much obtain.

There is a tale told of certain Kilkenny cats, but 'tis "somewhat musty." I am, Sir, your obedient servant,

H. NANKIVEL, M.R.C.S., &c.

St. Columb, Oct. 23, 1840.

P.S.—Our board meets again for the consideration of this question on the first Thursday in November.

OVARIAN MENSTRUATION.

To the Editor of THE LANCET.

SIR:—Your correspondent "FINSBURIENSIS" will confer a favour upon me by stating where I can find the paper of Mr. Cruikshank to which he alludes in the following words:—"Now there is the paper by Mr. Cruikshank, published in the 'Transactions of the Royal Society,' before the close of the last century, partially quoted by Dr. Lee, distinctly pointing out the same facts; and also carrying on the statement farther, by showing the analogy between this condition of the human ovaries during menstruation, and the same organ in the rabbit during heat." I am, Sir, your constant reader,

VERAX.

ST. THOMAS'S HOSPITAL.

ELECTION OF AN ASSISTANT-PHYSICIAN.

To the Editor of THE LANCET.

SIR:—I am anxious to draw your attention to some proceedings which have lately taken place at St. Thomas's Hospital. Dr. Lister having resigned the office of physician, Dr. Barker, the assistant-physician, was appointed to fill the vacant office; by this appointment the office of assistant-physician became vacant, and it, of course, became necessary to appoint some one in Dr. B.'s place. Dr. Golding offered himself as a candidate, a gentleman well known for his professional acquirements and talent; but the *wise men* do not appear to like the idea of appointing him, as they have a favourite in the person of Dr. Leeson; but finding, at the *eleventh hour*, that this Dr. Leeson was not eligible, in consequence of his not having passed his examination at the College of Physicians, the appointment was at once postponed. Now, who, I would ask, is this Dr. Leeson? all that appears to be known of him is, that he is the lecturer on chemistry at the St. Thomas's School, and that he, in some way or other, managed to get the title of M.D. about *three months ago*, either at Oxford or Cambridge. His appointment (should it take place) will cast a reflection on the governors of the hospital, which neither time or anything else can blot out. I do seriously hope, Sir, that you will take an early opportunity of exposing such disgraceful proceedings; for surely the governors do not wish for the lives of the poor to be sacrificed, to gratify the idle ambition of this or that individual. Perhaps the office Dr. Barker now holds might have been filled by *a much abler man*; but as the affair, thus far, is settled, I must conclude by hoping that Dr. B. will do his best, not only towards the poor patients, but towards the pupils also, availing himself of opportunities which so frequently occur, of *imparting practical knowledge*, and not running, as is now unfortunately the case, from one ward to another, *without scarcely opening his lips*. With many apologies for this hastily written scrawl, I am, Sir, your obedient servant,

M.R.C.S.

London, October 28, 1840.

G. P. BUTTON, M.D.

PRESENTATION OF PLATE.

WE understand that a present of plate, consisting of a tea and coffee pot, of the most chaste and tasteful pattern, has been given to George Peacock Button, M.D., late house-surgeon of the County of Middlesex Lunatic Asylum, in testimony of respect.

The plate was purchased by voluntary subscriptions on the part of various officers of that magnificent institution, and other friends, including Lady Ellis, Sir Alexander Morison, Colonel Clitherow, Rev. Francis Tebbutt, C. W. Begley, M.D., —— Cooper, Esq., &c. It was manufactured by Messrs. Turner, New Bond-street, London, the eminent goldsmiths to her Majesty, and bears the following inscription, which is highly honourable to Dr. Button:—On a garter beneath the crest is,

"Palman qui meruit ferat;"

and underneath, a tribute of respect to George Peacock Button, M.D., from officers of the Middlesex Country Lunatic Asylum, and other friends. Presented Oct. 12, 1840.

A JUST REBUKE.

On Wednesday last, just as Mr. Liston had commenced an operation for the removal of a piece of necrosed bone from the os calcis of a child, a person in the theatre, because the poor little sufferer began to *cry*, burst out into a loud laugh; whereupon Mr. Liston instantly turned round, and asked, "if the offender belonged to that hospital?" He then remarked, that "such unfeeling conduct was disgusting and disgraceful in the extreme." The honourable gentleman also alluded, in strong terms of reprehension, to a similar exhibition of cruel misbehaviour a few days since, and said, "that he sincerely hoped that the offending party was not a member of that school." This well-timed and excellent rebuke appeared to give great satisfaction to the gentlemen present. The operation was quickly executed, in Mr. Liston's admirable and unrivalled style.

TO CORRESPONDENTS.

Communications have been received from *Mr. Brooke*; *M. H. G.* (of Glasgow); *Mr. Small*; *A Legally qualified Medical Practitioner*; *One of the Unfortunate*; *Pink Saucer and Blue Light*; *Dr. Maddock*.

Mr. H. W. Williams.—It would interfere with our arrangements to make any such announcement at present.

C. H.—The questions could only be answered by an examination of the indentures, or a copy thereof. The insolvency does not nullify the bond, unless so specified in the indentures.

A Surgeon (Macclesfield) must say whether Dr. T. is a diplomatised, or a self-duped quack, before notice is taken of his advertisement.

Inquirer.—We really cannot state whether the picture of Mr. Lawrence is to be a single or a double-faced portrait; if accuracy of resemblance be the object of the subscribers and artists, we presume it will be the latter.

Mr. Gray and Mr. Cremer.—Mr. J. B. Gray, of Chelmsford, last week forwarded to us a reply to the letter of Mr. Cremer. Many private matters seem to be involved in the controversy; and we, therefore, refrained from letting it be pursued farther in our pages, simply stating here that Mr. Gray denies, totally, the truth of *six* of the statements in Mr. Cremer's letter, which amounts to this—and as such our readers may regard it—that Mr. Gray objects to the correctness of pretty nearly the whole of his antagonist's allegations. Mr. Cremer might write to us re-affirming them. Where could such a correspondence end? As the interest of the dispute lies specially in Chelmsford, Mr. Gray should in that town print and circulate his letter; and Mr. Cremer his rejoinder. The following statement, which we print from the *MS.* note of Sir Astley Cooper, will suffice to clear up the only point which could not be interminably pursued:—

"Sir Astley Cooper's compliments to Mr. Gray, and begs to say that his opinion of the case which he saw from Chelmsford, was, that it was *laceration of a ligament of the wrist-joint, for which the support of a splint was required.*—39, Conduit-street."

(The words in *italics* were underscored in his note by the hon. baronet.)

A Subscriber cannot at present practise as an apothecary without being liable to prosecution for the penalties named in the Act of 1815. It is not warrantable to "recommend" any person, of whose circumstances, generally, we are totally ignorant, to adopt any particular course of proceeding; and, in reply to the question of our correspondent, we shall simply state, that under a sound and just system of medical legislation, he would, probably, with his present legal qualifications, *readily* obtain the privilege he desires to possess.

M.D.—A surgeon voluntarily and knowingly attending a duel is amenable to the same treatment under the law as other witnesses of the transaction. No surgeon should attend a duel with the "anticipation" that he will be "used as a witness merely, and not held in the light of a *particeps criminis.*"

Opifex.—The medical societies are open to, and often attended by, the seniors in the profession. The appeal would produce nothing more than is already in operation.

The communication of *J. L.* on the "Physiology of Menstruation" shall appear in our next.

Lector will find the information he requires in the second volume of The Lancet for 1838-9, at page 560.

Showing the No. of Deaths from all Causes, Registered in the 5 Weeks, ending Saturday, Oct. 17, 1840.

Causes of Death.	September.			October.		Weekly Av. 1838, (corrected.)
	13 to 19	20 to 26	27 to Oct. 3	4 to 10	11 to 17	
Small-Pox	23	18	30	34	25	76
Measles	23	27	28	16	17	12
Scarlatina	35	42	40	32	51	30
Hooping Cough	12	17	17	22	13	42
Croup	3	5	10	7	2	7
Thrush	6	8	9	6	1	6
Diarrhœa	29	26	26	12	7	8
Dysentery	2	1	3	1	3	2
Cholera	7	1	1	3	....	.3
Influenza	....	....	....	....	....	1
Typhus	12	33	34	19	16	82
Erysipelas	4	6	4	7	7	8
Syphilis	....	1	....	....	....	1
Hydrophobia	....	....	....	....	....	.2
TOTAL	156	185	211	160	142	276
Cephalitis	8	6	18	4	9	11
Hydrocephalus	40	32	33	31	34	35
Apoplexy	16	20	10	13	20	20
Paralysis	16	12	15	19	10	15
Convulsions	62	53	46	51	55	68
Epilepsy	2	2	2	6	1	4
Insanity	1	....	....	....	....	1
Delirium Tremens	2	2	1	2	3	1
Dis. of Brain, &c.	4	11	5	7	5	6
TOTAL	151	138	130	124	137	161
Quinsey	1	3	1	1	1	2
Bronchitis	3	1	11	4	6	9
Pleurisy	1	2	3	1	1	2
Pneumonia	40	52	61	64	88	74
Hydrothorax	2	3	4	3	5	6
Asthma	12	16	14	12	17	29
Consumption	136	118	121	136	141	152
Dis. of Lungs, &c.	6	12	8	16	18	11
TOTAL	201	207	223	237	277	277
Pericarditis	....	2	....	....	....	.3
Aneurism	....	3	3	1	....	.5
Dis. of Heart, &c.	15	9	12	19	25	15
TOTAL	15	14	15	20	25	16
Teething	15	22	28	20	18	15
Gastri.—Enteritis	31	34	19	14	18	14
Peritonitis	4	....	....	1	....	1
Tabes Mesenterica	6	2	2	4	2	3
Ascites	....	1	2	....	1	.3
Ulceration	1	....	1	....	1	1
Hernia	....	1	2	1	2	2
Colic or Ileus	....	....	....	2	....	4
Dis. of Stomach	13	6	6	4	8	4
Hepatitis	2	....	1	....	1	1
Jaundice	3	2	4	2	....	2
Dis. of Liver, &c.	15	12	8	6	12	8
TOTAL	110	80	73	54	63	59
Nephritis	....	....	....	1	....	.5
Diabetes	...	....	1	....	....	.4
Stone	2	1	1	....	....	.4
Stricture	....	....	....	....	....	.6
Dis. Kidneys, &c.	1	4	4	1	4	3
TOTAL	3	5	6	2	4	5

Causes of Death.	September.			October.		Weekly Av. 1838, (corrected.)
	13 to 19	20 to 26	27 to Oct. 3	4 to 10	11 to 17	
Childbed	6	4	6	6	11	8
Ovarian Dropsy	....	1	....	....	....	.3
Dis. of Uterus, &c.	2	4	3	2	1	2
TOTAL	8	9	9	8	12	11
Rheumatism	4	1	4	3	2	4
Dis. of Joints, &c.	3	4	1	5	2	4
TOTAL	7	5	5	8	4	8
Ulcer	1	....	....	1	....	.4
Fistula	....	....	1	....	....	.4
Dis. of Skin, &c.	....	1	....	1	1	.4
TOTAL	1	1	1	2	1	1
Inflammation	3	6	6	1	5	19
Hæmorrhage	2	2	4	1	....	4
Dropsy	36	43	19	42	33	
Abscess	1	7	1	3	10	4
Mortification	4	7	9	3	4	4
Scrofula	2	3	6	2	1	1
Carcinoma	6	8	2	10	10	6
Tumour	4	2	2	....	1	1
Gout	....	1	....	1	1	1
Atrophy	12	6	7	5	9	4
Debility	14	18	20	21	13	12
Malformations	1	2	1	....	1	1
Sudden Deaths	3	15	10	7	11	13
TOTAL	88	120	87	96	99	105
Old Age	63	52	67	64	69	82
Intemperance	1	....	....	1	1	.4
Privation	....	....	1	....	....	.6
Violent Deaths	16	21	23	15	21	27
TOTAL	17	21	24	16	22	28
Causes not Spec.	1	1	6	3	9	13
Deaths, all Causes	821	838	857	794	864	1051
No. of Week	37	38	39	40	41	....

1840.	Ages.		
	0 to 15	15 to 60	60 & upwards
Sept. 13th to 19th	432	249	139
„ 20th to 26th	422	253	159
„ 27th to Oct. 3rd	459	229	166
Oct. 4th to 10th	405	251	137
„ 11th to 17th	408	303	192
Weekly Average, 1838	484	385	199

	Estimated Pop. 1840.	Sept. 13 to 19.	Sept. 20 to 26.	Sept. 27 to Oct. 3.	Oct. 4 to 10.	Oct. 11 to 17.	Weekly Av. 1838.
West Districts	304,921	110	119	104	124	110	109
North Districts	414,458	152	143	170	118	160	183
Central Districts	369,722	141	150	161	137	188	986
East Districts	411,634	211	191	201	204	181	949
South Districts	450,265	197	226	221	211	205	949
	1,955,000	821	838	857	794	864	1051